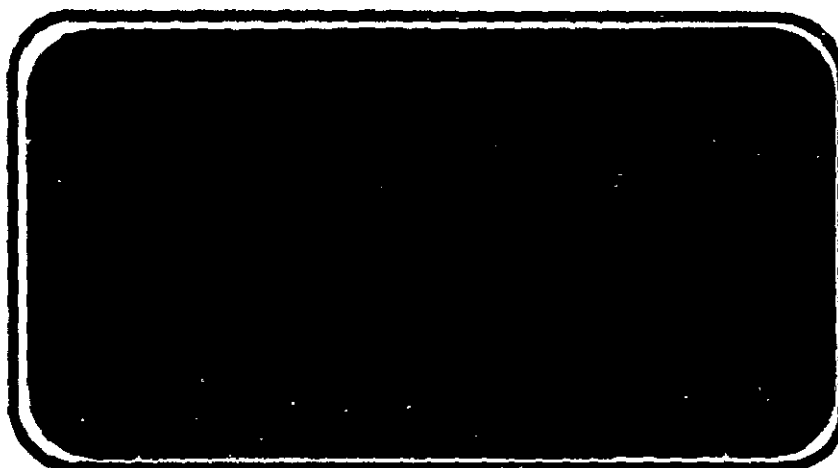




NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NASA CR-

141829



(NASA-CR-141829) HEAT TRANSFER TESTS ON A
0.01-SCALE ROCKWELL CONFIGURATION 3 SPACE
SHUTTLE ORBITER AND TANK (37-OT) IN THE
CALSPAN 48-INCH HYPERSONIC SHOCK TUNNEL
(OH12/IH21), VOLUME 2 (Chrysler Corp.)

N76-16142

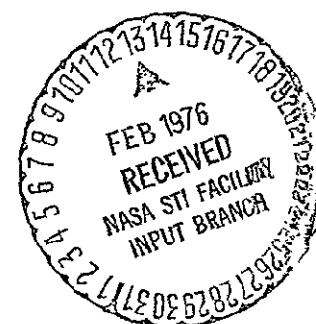
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Unclas

G3/18 09600

SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT



JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA MANAGEMENT services

SPACE DIVISION



CHRYSLER
CORPORATION

October, 1975

DMS-DR-2164
NASA CR-141,829

VOLUME 2 OF 3

HEAT TRANSFER TESTS ON A 0.01-SCALE
ROCKWELL CONFIGURATION 3 SPACE SHUTTLE ORBITER
AND TANK (37-0T) IN THE CALSPAN 48-INCH
HYPERSONIC SHOCK TUNNEL (OH12/IH21)

by

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by

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for

Johnson Space Center
National Aeronautics and Space Administration
Houston, Texas

WIND TUNNEL TEST SPECIFICS:

Test Number: Calspan 48 HST-173-100
NASA Series Number: OH12/IH21
Model Number: 37-OT
Test Dates: October 29 through December 15, 1973

FACILITY COORDINATOR:

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Phone: (716) 632-7500

PROJECT ENGINEER:

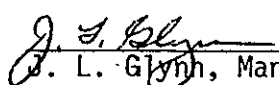
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HEAT TRANSFER TESTS ON A 0.01-SCALE
ROCKWELL CONFIGURATION 3 SPACE SHUTTLE ORBITER AND
TANK (37-OT) IN THE CALSPAN 48-INCH
HYPERSONIC SHOCK TUNNEL (OH12/IH21)

by

M. Kotch, Rockwell International Space Division

ABSTRACT

This report presents model information and data from wind tunnel tests conducted on 0.01-scale models of the Rockwell Space Shuttle Orbiter and External Tank. These tests were conducted in the Calspan 48" Hypersonic Shock Tunnel to determine heating rates on ascent and re-entry configurations at various Reynolds numbers, Mach numbers and angles of attack.

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PLOTTED COEFFICIENTS SCHEDULE:

- A) $H/HREF$ versus X/L and HI/HU versus X/L
- B) $H/HREF$ versus X/C and HI/HU versus X/C
- C) $H/HREF$ versus Z/BV and HI/HU versus Z/BV
- D) $H/HREF$ versus X/L
- E) $H/HREF$ versus X/C
- F) $H/HREF$ versus Z/BV

INTRODUCTION

A 0.01-scale orbiter/external tank heat transfer model (number 37-OT) was tested in the Calspan 48" Hypersonic Shock Tunnel from October 29 through December 15, 1973. The NASA/Rockwell designation for this test was OH12/IH21, and the Calspan facility test number was I73-100.

The purpose of this test was to determine ascent and entry heat transfer rates for the external tank and the Configuration 3 Orbiter over a range of Mach numbers from 6.95 to 19.5 and Reynolds numbers/foot from 0.0095×10^6 to 6.5×10^6 . Of particular interest was the determination of orbiter wing leading edge heating during entry, with both laminar and turbulent boundary layer conditions.

A total of 58 good program runs was made out of 73 attempts. Fifteen runs were no good because of facility malfunction or off scale heating rate data. This test is also documented in Reference 2 (a Calspan Technical Report).

NOMENCLATURE

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
b	B	wing span, inches
c	C	local wing chord, inches
C_h		Stanton number $\frac{778 \dot{q}_w}{\rho_\infty U_\infty (rH_0 - H_w)}$
h	H	heat-transfer coefficient, $778 (32.17) \dot{q} / (rH_0 - H_w)$, lbm/ft ² sec
H		Enthalpy, ft. lbs/slug
L	L	fuselage length, inches
M	MACH	Mach number
OMS		Orbital Maneuvering System
P	P	Pressure, psia
P_r		Prandtl number
q		Dynamic pressure, psia
\dot{q}	QDOT	heat transfer rate, BTU/ft ² sec
RCS		reaction control system
r	HAW/HT	recovery factor
Re/ft	RE/FT	Reynolds number per unit length, $\frac{\rho_\infty U_\infty}{\mu_\infty}$
S		wing span, inches
T	T	temperature, °R
t		time, seconds
U		velocity, ft/sec
X	X	longitudinal distance, inches
Y	Y	spanwise distance, inches

NOMENCLATURE (Continued)

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
Z	Z	vertical distance, inches
α	ALPHA	angle of attack, degrees
β	BETA	angle of sideslip, degrees
γ		specific heat ratio
μ		absolute viscosity, slugs/ft-sec
ρ		density, slugs/ft ³
ϕ	PHI	Orbiter and external tank fuselage angular coordinate, deg. measured clockwise looking forward, 0 degrees at bottom centerline
o		nozzle supply conditions
o'		stagnation conditions behind a normal shock
i		initial driven gas condition
ms		model station
4		gas conditions behind reflected shock
i		incident shock in driven gas
ts		test section initial conditions
w		initial conditions at model surface
∞		free stream or test section conditions
H _{aw}	HAW	adiabatic wall enthalpy
H _t	HT	free stream total enthalpy

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NOMENCLATURE (Concluded)

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
h_{ref}	HREF	reference heat-transfer coefficient, value obtained at stagnation point on a one foot diameter sphere
h/h_{ref}	H/HREF	ratio of model heat-transfer coefficient to heat-transfer coefficient of reference sphere for $H_{aw}/H_t = X.XXX$
	HI/HU	interference to undisturbed heat transfer coefficient ratio
	X/C	chordwise location, fraction of local chord
	X/L	longitudinal location, fraction of body length
	2Y/B	spanwise location, fraction of semi-span
	Z/BV	spanwise location on vertical tail, fraction of exposed span
	RN/L	Reynolds number per unit length
	RN/L1, RN/L2, RN/L3	designates the Reynolds number schedule defined by table I

CONFIGURATIONS INVESTIGATED

Model 37-OT is a 0.01-scale model of the Space Shuttle configuration 3 Orbiter and external tank constructed of 17-4 PH stainless steel. The orbiter is a sting mounted full-span model, with OMS/RCS pods. The external tank is equipped with removable protuberances (lines and attachment struts) and was mounted on a separate sting which was either coupled with the orbiter sting or mounted separately on the tunnel support fixture. The figures and photographs at the back of this text illustrate orbiter and external tank details. Model 37-OT was designed and built by Grumman Aerospace Corp. with instrumentation built and installed by Calspan Corporation.

Model nomenclature used for the configuration 3 Orbiter and external tank was as follows:

B ₁₇	Orbiter body
C ₇	Canopy
E ₂₂	Elevon
F ₅	Body flap
M ₄	OMS pod
R ₅	Rudder
T ₁₀	External tank
T ₁₆	External tank without protuberances
V ₇	Vertical tail
W ₁₀₃	Wing

Model dimensional data are given in Table III. Table II outlines model configurations and tunnel conditions investigated. The following configuration notation is used:

CONFIGURATIONS INVESTIGATED (Concluded)

O = Orbiter = B₁₇ C₇ E₂₂ F₅ M₄ R₅ V₇ W₁₀₃

T = external tank = T₁₀

T-NP = external tank without protuberances, support structure, or
lines = T₁₆

MODEL INSTRUMENTATION

Model instrumentation for 37-OT consisted of 158 thin-film heat transfer gages. Ninety-eight (98) of these gages were on the orbiter, the remaining sixty (60) were on the external tank. Orbiter and tank gage locations are illustrated in figure 2 and tabulated in Table IV. Photographs in figure 3 may clarify questions about gauge locations.

The thin-film gages consisted of a platinum film fused to a pyrex insulating substrate and protected from the free stream by a thin dielectric coating of magnesium fluoride. Transient surface temperature is determined by measuring the instantaneous gage resistance change which varied linearly with temperature. An excellent description of thin-film gage theory and operation can be found in Reference 1.

Tunnel conditions were determined by quick-response pressure transducers and a reference stagnation heat-transfer gage.

Data acquisition equipment, provided by Calspan, consisted of the Calspan NAVCOR 48-channel data acquisition system, one 14-channel high-speed FM tape recorder, and twenty-two 2-channel recording oscilloscopes. The NAVCOR system provided both a temperature and heat-transfer rate history for each channel, while the oscilloscopes recorded only heat-transfer rate. This rate was derived from an analog network which converted the gage temperature signal to a heat transfer rate signal. The tape recorder was used only as a temporary storage of temperature histories and was input into the NAVCOR following each run for a record of temperature and heat transfer rate.

MODEL INSTRUMENTATION (Concluded)

Additional instrumentation consisted of a tunnel Schlieren photograph system, which provided qualitative flow information for each run. Sample Schlieren photographs are included in figure 3.

TEST FACILITY DESCRIPTION

The 48-inch Hypersonic Shock Tunnel (HST) employs a constant-area shock tube with an 8-inch inner diameter. The driver tube is 20 feet long and is externally heated by a resistance heater to temperatures of 1400° R. The driven tube is 50 feet long. The driver gas is generally a mixture of helium and nitrogen with a maximum helium purity of 100% while the driven gas is generally air. Steady-flow test times of duration sufficient to permit accurate measurement of the various parameters of interest are achieved with the tailored-interface technique.

Three axisymmetric nozzles are available to expand the test gas to high velocities:

<u>Nozzle</u>	<u>Type</u>	<u>Exit Diameter in inches</u>	<u>Test Section Mach Number</u>
A	Contoured	24	5.5 to 8
D	Contoured	48	10 to 16
E	10-1/2° Semi-angle cone	48	9 to 20

The contoured nozzles provide parallel flow with no pressure gradients in the streamwise direction for several feet. This is very important since the presence of a streamwise pressure gradient can have a significant effect on model test results. The nozzles employ replaceable throat inserts of different diameters so that with the particular nozzle, the test Mach number can be varied. Test air passes downstream of the test section into a receiver tank of a size sufficient to maintain the desired flow for durations of 5 to 13 milliseconds. All nozzles have been calibrated using pitot-pressure survey rakes over the Mach number range indicated.

TEST FACILITY DESCRIPTION (Concluded)

The Test Section is equipped with two 16-inch diameter Schlieren windows mounted a short distance aft of the nozzle exit.

TEST PROCEDURE

Model 37-OT was mounted via the model sting(s) to the tunnel support fixture at the tunnel centerline. Instrumentation wiring was routed through the base stings to a tunnel instrumentation patch panel. Figures 2a and b show the orbiter alone and the second stage configuration installations, respectively.

A typical test procedure was as follows:

1. Set model angles-of-attack, if necessary.
2. Install tunnel diaphragms and proper tunnel nozzle orifice.
3. Evacuate test section, set instrumentation gains and calibrate oscilloscopes from heating rate estimates, and check gage resistances for weak or damaged gages.
4. Close driver and load driven tube for proper test conditions. Take no-flow Schlieren picture.
5. Load driver to proper mixture and pressure for test conditions.
6. Fire tunnel for run.
7. Evacuate test section for post-run gage checks, then bring test section to atmosphere and break tunnel joints. Read out data.
8. Clean tunnel and inspect model.

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DATA REDUCTION

Data for this test were reduced according to standard Calspan data reduction procedures. NAVCOR recordings and Polaroid film oscilloscope records of heat transfer rates were made available after each run. Following the test, all data records were read and assembled for computerized data reduction.

This report contains a listing of heat transfer coefficient H/H_{REF} and heat transfer rate $QDOT$. H/H_{REF} values are presented for three recovery factors $r = .85, .9$ and 1.0 . Plotted data illustrate the effect of recovery factor, angle of attack and Reynolds number on heat transfer. The postscript on RN/L indicates the Reynolds number schedule defined by table I. Heat transfer changes between undisturbed and mated configurations is illustrated by H_I/H_U plots. The plotted and tabulated data are arranged in the following manner:

VOLUME NO.	CONTENTS
1	Plots showing the effect of recovery factor on orbiter and external tank heat transfer for both undisturbed and mated configurations. Figure 4 through Figure 17
2	Plots showing the effect of angle of attack and Reynolds number on the undisturbed orbiter heat transfer Figure 18 through Figure 35

DATA REDUCTION (Concluded)

VOLUME
NO.

3 Tabular listing of source data

H/HREF ~ heat transfer coefficient data

Component	Fourth Character*	Page
orbiter fuselage	B	1
orbiter wing	W	75
orbiter vertical tail	V	180
orbiter wing leading edge (see Detail A fig. 2b)	A	219
orbiter wing leading edge (see Detail B fig. 2b)	C	254
external tank	T	323
QDOT ~ heat transfer rate is arranged in the same manner		365-512

* The fourth character in each dataset identifier (i.e., RUGBXX, B for Fuselage) represents the individual component.

REFERENCES

1. Vidal, R. J., "Model Instrumentation Techniques for Heat Transfer and Force Measurements in a Hypersonic Shock Tunnel," Cornell Aeronautical Laboratory Report No. AD-917-A-7, February, 1956.
2. Patten, J. S., "An Experimental Investigation of the Ascent and Descent Heating on a 0.01-Scale Model of the Space Shuttle," Calspan Technical Report, March, 1974.
3. Foust, J. W., "Pretest Information for Testing the 0.010-Scale Space Shuttle Heat Transfer Model 37-OT in the Calspan Hypersonic Shock Tunnel," SD73-SH-0198, dated July 11, 1973.

TABLE I.

TEST : OH-12, IH-21		DATE : 5/3/74	
TEST CONDITIONS			
MACH NUMBER	REYNOLDS NUMBER (per unit length) ($1/\text{ft}$)	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Rankine)
6.95	0.10×10^6	1.35	5575
7.6	1.19×10^6	2.75	2000
7.9	6.5×10^6	10.2	1550
8.0	1.19×10^6	3.22	2600
10.2	2.0×10^6	4.03	2725
10.5	0.86×10^6	2.71	3200
12.0(sch 1)	0.20×10^6	0.73	3925
12.0(sch 3)	0.86×10^6	0.26	3475
15.6(sch 1)	0.035×10^6	0.07	3650
15.6(sch 3)	0.20×10^6	0.36	3500
18.5	0.0095×10^6	0.017	4400
19.5	0.035×10^6	0.065	4650
15.6(sch 2)	0.3×10^6	0.61	3841

BALANCE UTILIZED: _____

	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE:
NF	_____	_____	_____
SF	_____	_____	_____
AF	_____	_____	_____
PM	_____	_____	_____
RM	_____	_____	_____
YM	_____	_____	_____

COMMENTS:

TABLE II.

TEST: 0412 / IH21

DATA SET RUN NUMBER COLLATION SUMMARY

DATE: 6-12-75

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES		NO. OF RUNS	MACH NUMBERS (OR ALTERNATE INDEPENDENT VARIABLE)									
		α	β	RH/L SCH	F/C Hookup		7.0	7.61	7.9	8.0	10.5	12.2	15.8	18.3	19.1	
RUG001	37T	0	0	1	T	5	4	2					73		49	48
02	↓	5	T	T	T	1										50
03	37T-NP	0			T	1									51	
04	37 OT-NP	0			Φ/T	2									36/35	
05	37 OT	0			Φ/T	8	28/31	27/30							37/34	38/32
06	↓	5			Φ/T	2										39/33
07	37 O	0			Φ	5	5	8					52		42	41
08		5				1										40
09		10				1									43	
10		25				7	9		26	17	53	55	57			44
11		30				7	12		14,25		63	61	62			46
12		35				7	20		22	21	64	67	65			47
13	↓	40	↓	↓	↓	2			24	23						
14	37-OT	0		2	Φ/T	3							70/1,72			
15	37 O	25		3	Φ	2							54	56		
16	↓	30		T	T	2							58	60		
17	↓	35	↓	↓	↓	2							68	66		

175

131925313743495561677576

COEFFICIENTS

IDVAR (1)

IDVAR (2)

NDV

α OR β

SCHEDULES

NP denotes ET without protuberances
* Nominal Values-check individual runs For Values

Table III Model Dimensional Data

MODEL COMPONENT : BODY - B₁₇

GENERAL DESCRIPTION : Fuselage, 3 configuration, lightweight orbiter

MODEL SCALE: 0.010

DRAWING NUMBER : VL70-000139

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length , In.	<u>1290.3</u>	<u>12.903</u>
Max Width , In.	<u>267.6</u>	<u>2.676</u>
Max Depth, In.	<u>244.5</u>	<u>2.445</u>
Fineness Ratio	<u>4.822</u>	<u>4.822</u>
Area - Ft ²	<u></u>	<u></u>
Max. Cross-Sectional	<u>386.67</u>	<u>3.867</u>
Planform	<u></u>	<u></u>
Wetted	<u></u>	<u></u>
Base	<u></u>	<u></u>

Table III (Cont'd)

MODEL COMPONENT : CANOPY - C₇

GENERAL DESCRIPTION : Configuration 3

MODEL SCALE: 0.010

DRAWING NUMBER : VL70-000139

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length($X_0 = 433$ to $X_0 = 578$), In.	<u>145.00</u>	<u>1.450</u>
Max Width	<u> </u>	<u> </u>
Max Depth	<u> </u>	<u> </u>
Fineness Ratio	<u> </u>	<u> </u>
Area	<u> </u>	<u> </u>
Max. Cross-Sectional	<u> </u>	<u> </u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>

Table III. (Cont'd)

MODEL COMPONENT : OMS POD - M₄

GENERAL DESCRIPTION : Configuration 3

NOTE: Identical to M₃, except inte section to fuselage.

MODEL SCALE: 0.010

DRAWING NUMBER: VL70-000139

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length , In.	<u>346.0</u>	<u>3.460</u>
Max Width , In.	<u>108.0</u>	<u>1.080</u>
Max Depth , In.	<u>113.0</u>	<u>1.130</u>
Fineness Ratio	<u> </u>	<u> </u>
Area	<u> </u>	<u> </u>
Max. Cross-Sectional	<u> </u>	<u> </u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>

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Table III (Cont'd)

MODEL COMPONENT: RUDDER - R₅GENERAL DESCRIPTION: Configuration 2A, 3, 3A and 140A/BMODEL SCALE: 0.010DRAWING NUMBER: VL70-000146A, -000095, -000139

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area - Ft ²	<u>100.15</u>	<u>0.0100</u>
Span (equivalent), in.	<u>201.0</u>	<u>2.010</u>
Inb'd equivalent chord, in.	<u>91.585</u>	<u>0.916</u>
Outb'd equivalent chord, in.	<u>50.833</u>	<u>0.508</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
At Outb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>34.83</u>	<u>34.83</u>
Tailing Edge	<u>26.25</u>	<u>26.25</u>
Hingeline (Product of area & \bar{c})	<u>34.83</u>	<u>34.83</u>
Area Moment (Normal to hingeline), Ft ³	<u>610.92</u>	<u>0.0006</u>
Mean Aerodynamic Chord, in.	<u>73.2</u>	<u>0.732</u>

Table III (Cont'd)

MODEL COMPONENT : EXTERNAL TANK - T₁₀

GENERAL DESCRIPTION : External oxygen-hydrogen tank, configuration 3

MODEL SCALE: 0.010

DRAWING NUMBER: VL72-000088, VL78-000041

DIMENSIONS .	FULL SCALE	MODEL SCALE
Length (Nose at $X_T = 309$)	<u>1865.0</u>	<u>18.650</u>
Max Width (Dia.), In.	<u>324.00</u>	<u>3.240</u>
Max Depth	<u></u>	<u></u>
Fineness Ratio	<u>5.756</u>	<u>5.756</u>
Area ~ Ft ² .	<u></u>	<u></u>
Max. Cross-Sectional	<u>572.555</u>	<u>0.057</u>
Planform	<u></u>	<u></u>
Wetted	<u></u>	<u></u>
Base	<u></u>	<u></u>
W.P. of Tank Centerline (X_T), In.	<u>400.0</u>	<u>4.00</u>

Table III (Cont'd)

MODEL COMPONENT : EXTERNAL TANK - T₁₆GENERAL DESCRIPTION : External oxygen-hydrogen tank. Has a 2416-
inch radius secant-ogive nose.MODEL SCALE: 0.010DRAWING NUMBER : SS-A01167

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length, In. (Nose At $X_T = 276$)	<u>1898.0</u>	<u>18.980</u>
Max Width	<u>324.0</u>	<u>3.240</u>
Max Depth	<u> </u>	<u> </u>
Fineness Ratio	<u>5.858</u>	<u>5.858</u>
Area - Ft ²	<u> </u>	<u> </u>
Max. Cross-Sectional	<u>572.555</u>	<u>0.057</u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>
W.P. of tank centerline (Z_T), In.	<u>400.0</u>	<u>4.00</u>
L.E. nose radius	<u>16.5</u>	<u>0.165</u>
Origin of 2416" radius at 2231 from tank centerline	<u>1181.0</u>	<u>11.810</u>

Table III (Cont'd)

MODEL COMPONENT: VERTICAL - V 7GENERAL DESCRIPTION: Centerline vertical tail, doublewedge airfoil with rounded leading edge.NOTE: Same as V₅, but with manipulator housing removed.MODEL SCALE: 0.010DRAWING NUMBER: VL70-000139

DIMENSIONS:	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
TOTAL DATA		
Area (Theo) - Ft ²		
Planform	<u>425.92</u>	<u>0.043</u>
Span (Theo) - In.	<u>315.72</u>	<u>3.157</u>
Aspect Ratio	<u>1.675</u>	<u>1.675</u>
Rate of Taper	<u>0.507</u>	<u>0.507</u>
Taper Ratio	<u>0.404</u>	<u>0.404</u>
Sweep-Back Angles, Degrees:		
Leading Edge	<u>45.000</u>	<u>45.000</u>
Trailing Edge	<u>26.249</u>	<u>26.249</u>
0.25 Element Line	<u>41.130</u>	<u>41.130</u>
Chords:		
Root (Theo) WP	<u>268.50</u>	<u>2.685</u>
Tip (Theo) WP	<u>108.47</u>	<u>1.085</u>
MAC	<u>199.81</u>	<u>1.998</u>
Fus. Sta. of .25 MAC	<u>1463.50</u>	<u>14.635</u>
W.P. of .25 MAC	<u>635.522</u>	<u>6.355</u>
B.L. of .25 MAC	<u>0.00</u>	<u>0.00</u>
Airfoil Section		
Leading Wedge Angle - Deg.	<u>10.00</u>	<u>10.00</u>
Trailing Wedge Angle - Deg.	<u>14.920</u>	<u>14.920</u>
Leading Edge Radius	<u>2.00</u>	<u>0.020</u>
Void Area	<u>13.17</u>	<u>0.0013</u>
Blanketed Area	<u>0.0</u>	<u>0.0</u>

Table III (Cont'd)

MODEL COMPONENT: WING-W₁₀₃GENERAL DESCRIPTION: Configuration 3 orbiter wing.NOTE: Same planform as W₈₇, except dihedral at trailing edge.

MODEL SCALE: 0.010

TEST NO.	DWG. NO.	VL70-000139
DIMENSIONS:	FULL-SCALE	MODEL SCALE
<u>TOTAL DATA</u>		
Area (Theo.) Ft ²		
Planform	2690.00	0.2690
Span (Theo) In.	936.68	9.367
Aspect Ratio	2.265	2.265
Rate of Taper	1.177	1.177
Taper Ratio	0.200	0.200
Dihedral Angle, degrees	3.500	3.500
Incidence Angle, degrees	3.000	3.000
Aerodynamic Twist, degrees	3.000	3.000
Sweep Back Angles, degrees		
Leading Edge	45.000	45.000
Trailing Edge	- 10.24	-10.24
0.25 Element Line	35.209	35.209
Chords:		
Root (Theo) B.P.O.O.	689.24	6.892
Tip, (Theo) B.P.	137.85	1.379
MAC	474.81	4.748
Fus. Sta. of .25 MAC	1136.89	11.369
W.P. of .25 MAC	299.20	2.992
B.L. of .25 MAC	182.13	1.821
<u>EXPOSED DATA</u>		
Area (Theo) Ft ²	1752.29	0.175
Span, (Theo) In. BP108	720.68	7.207
Aspect Ratio	2.058	2.058
Taper Ratio	0.245	0.245
Chords		
Root BP108	562.40	5.624
Tip 1.00 b	137.85	1.379
MAC	393.03	3.930
Fus. Sta. of .25 MAC	1185.31	11.853
W.P. of .25 MAC	300.20	3.002
B.L. of .25 MAC	251.76	2.518
Airfoil Section (Rockwell Mod NASA)		
XXXX-64		
Root $\frac{b}{2}$ =	0.10	0.10
Tip $\frac{b}{2}$ =	0.12	0.12
Data for (1) of (2) Sides		
Leading Edge Cuff		
Planform Area Ft ²	120.33	0.012
Leading Edge Intersects Fus M. L. @ Sta	560.0	5.600
Leading Edge Intersects Wing @ Sta	1035.0	10.350

Table IV.
HEAT TRANSFER GAGE LOCATIONS
ORBITER ($L_{oms} = 12.903$)

FUSELAGE							WING LOWER SURFACE				
GAGE NO.	X_m/L_{oms}	X_{oms} (FROM NOSE)	ACTUAL x_{oms}	DESIRED Y_{oms}	ACTUAL y_{oms}	ϕ	GAGE NO.	DESIRED X_{oms} (FROM NOSE)	ACTUAL x_{oms}	DESIRED Y_{oms}	ACTUAL y_{oms}
1	0	0	0	0	+.012	0	43	5.161	5.165	1.171	1.159
2	0.005	.065	.096		.012		44	6.451	6.442		1.156
3	0.02	.258	.249		.012		45	7.742	7.750		1.161
4	0.04	.516	.539		.020		46	9.032	9.040		1.186
5	0.06	.774	.797		.017		47	11.613	11.615	1.171	1.163
6	0.08	1.032	1.051		.019		48	7.742	7.780	1.873	1.930
7	0.10	1.290	1.324		.019		49	9.032	9.029		1.867
8	0.12	1.548	1.570		.019		50	10.322	10.322		1.871
9	0.14	1.806	1.831		.018		51	12.037	12.035	1.873	1.867
10	0.16	2.065	2.078		.016		52	8.399	8.407	2.342	2.337
11	0.20	2.580	2.578		.009		53	9.032	9.044		2.332
12	0.25	3.226	3.221		.008		54	10.322	10.326		2.338
13	0.30	3.871	3.873		.006		55	11.211	11.219	2.342	2.341
14	0.35	4.516	4.520		.006		56	9.500	9.499	2.810	2.804
15	0.40	5.161	5.172		.006		57	10.322	10.322		2.804
16	0.45	5.806	5.795		.005		58	10.940	10.941	2.810	2.811
17	0.50	6.452	6.452		.005		59	12.020	12.018	2.810	2.804
18	0.60	7.742	7.698		.003		60	9.554	9.553	3.513	3.455
19	0.70	9.032	9.033		.006		61	10.322	10.321	3.513	3.510
20	0.80	10.322	10.320		.004		62	11.424	11.429	3.513	3.507
21	0.90	11.613	11.616		.011		63	10.172	10.145	3.981	3.972
22	1.00	12.903	12.907		.010		64	11.060	11.066	3.981	3.967
23	0.03	.387	.391		.016	180°	65	8.520	8.508	1.973	1.854
24	0.06	.774	.780		.014		66	10.658	10.666	4.449	4.436
25	0.09	1.161	1.171		.004		67	11.293	11.293	4.449	4.448
26	0.125	1.613	1.623		.006		68	11.345	11.347	TIP	TIP
27	0.15	1.935	1.940		.006						
28	0.130	2.323	2.333		.007						
29	0.160	2.065	2.067		.009						
30	0.170	2.194	2.200		.009						
31	0.50	6.452	6.461		.003						
32	0.70	9.032	9.023	0	.001	180°					
33	0.10	1.290	1.284	---	.569	30°					
34	0.20	2.580	2.593	---	.638	30°					
35	0.30	3.871	3.875	.500	.490	---					
36	0.40	5.161	5.151	.500	.494	---					
37	0.60	7.742	7.749	.500	.494	---					
38	0.80	10.322	10.323	500	497	---					

VERTICAL TAIL		
GAGE NO.	DESIRED Z_{oms}	ACTUAL z_{oms}
39	6.096	6.091
40	6.961	6.970
41	7.867	7.861
42	8.157	8.156

WING LEADING EDGE			
GAGE NO.	DESIRED	ACTUAL	X_{ACTUAL}
69-70	$Y_o = 1.171$	$Y_o = 1.155$	
71-72	$X = 5.160$	$X = 5.164$	
73-74	$X = 6.503$	$X = 6.508$	
75-76	$X = 7.742$	$X = 7.753$	
77-78	$Y_o = 2.342$	$Y = 2.351$	8.332
79-86*	$Y_o = 2.810$	$Y = 2.823$	8.801
89-90	$Y_o = 3.513$	$Y = 3.517$	9.487
91-98*	$Y_o = 3.981$	$Y = 4.033$	10.016
101-102	$Y_o = 4.449$	$Y = 4.466$	10.577

*GAGE NUMBERS 87, 88 & 99, 100 WERE NOT
FABRICATED BECAUSE OF SPACE LIMITATIONS.

Table IV. (Con1'd)
TANK ($L_{tms} = 18.650$)

GAGE NO.	X_{ms}/L_{tms}	X_{ms} (FROM NOSE)	ACTUAL x	ϕ
103	0.00	0	0	—
104	.005	.080	.076	220
105	.01	.186	.196	199
106	.04	.746	.760	180
107	.08	1.492	1.498	↑
108	.15	2.798	2.802	↓
109	.20	3.730	3.744	180
110	.21	3.917	3.932	0
111	.04	.746	.740	180
112	.25	4.663	4.686	↑
113	.35	6.528	6.545	↓
114	.375	6.994	7.009	180
115	.40	7.460	7.478	↑
116	.425	7.926	7.953	↓
117	.45	8.393	8.414	180
118	.475	8.859	8.877	↑
119	.50	9.325	9.341	↓
120	.343	6.397	6.407	225
121	.55	10.258	10.271	180
122	.475	7.572	7.590	193
123	.60	11.190	11.215	180
124	.65	12.123	12.145	↑
125	.70	13.055	13.083	↓
126	.80	14.920	14.940	180
127	.90	16.785	16.818	↑
128	.937	17.475	17.458	↓
129	.406	7.572	7.594	167
130	.15	2.798	2.800	0
131	.44	8.206	8.223	199
132	.08	1.492	1.492	0
133	.475	8.859	8.871	199
134	.50	9.325	9.335	199.
135	.90	16.785	16.796	199
136	.40	7.460	7.464	221.5
137	.50	9.325	9.344	↑
138	.60	11.190	11.205	↓
139	.70	13.055	13.073	221.5
140	.80	14.920	14.940	↑
141	.85	15.853	15.882	↓
142	.90	16.785	16.818	214.
143	.825	15.386	15.386	↑
144	.85	15.853	15.874	↓
145	.875	16.319	16.339	241.
146	.90	16.785	16.805	↑
147	.925	17.251	17.280	↓
148	.960	17.904	17.902	247.5
149	.85	15.853	15.874	↑
150	.90	16.785	16.795	↓
151	.20	3.730	3.729	270
152	.40	7.460	7.465	↑
153	.50	9.325	9.322	↓
154	.60	11.190	11.200	270.
155	.70	13.055	13.066	↑
156	.80	14.920	14.930	↓
157	.90	16.785	16.810	315.
158	.60	11.190	11.196	↑
159	.80	14.920	14.930	↓
160	.40	7.460	7.459	0
161	.60	11.190	11.191	0
162	.80	14.920	14.914	0

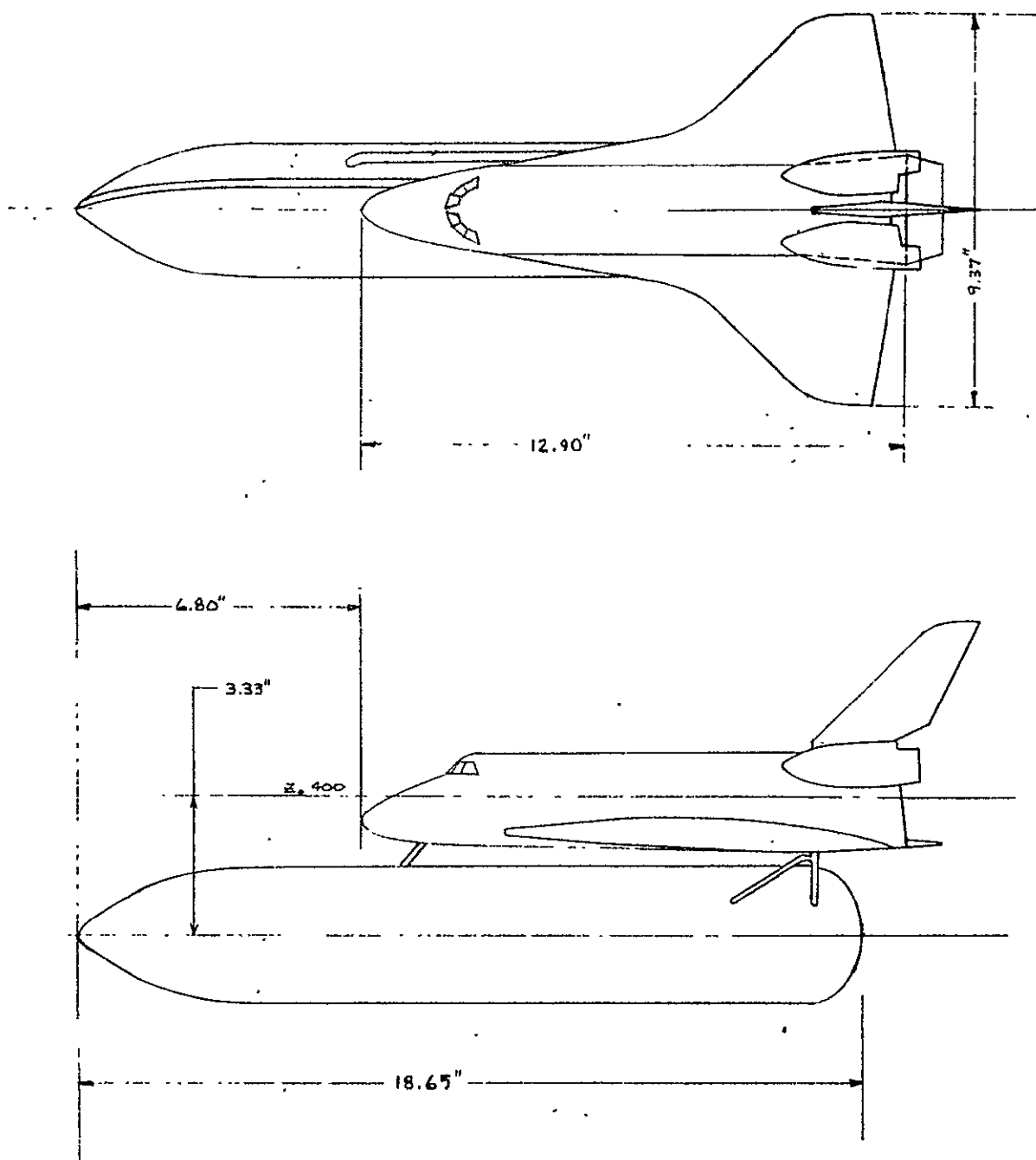
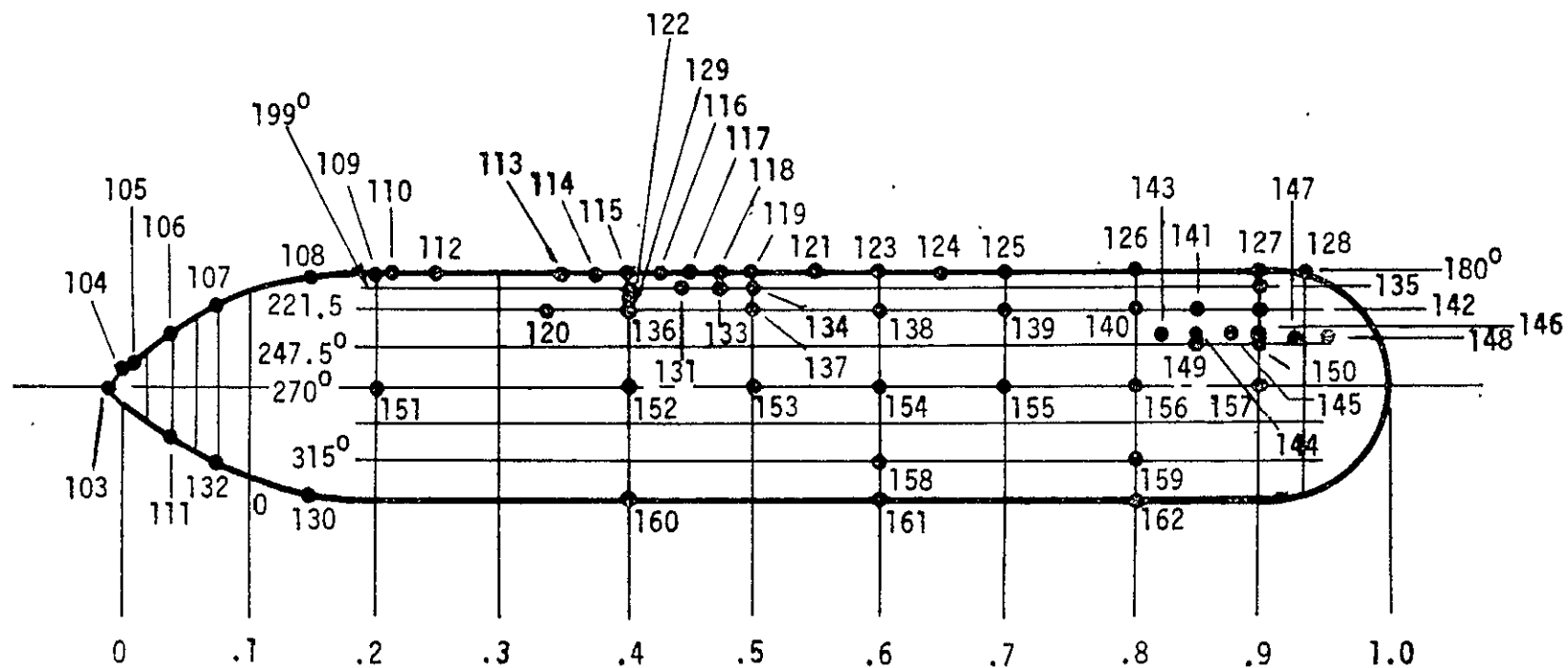
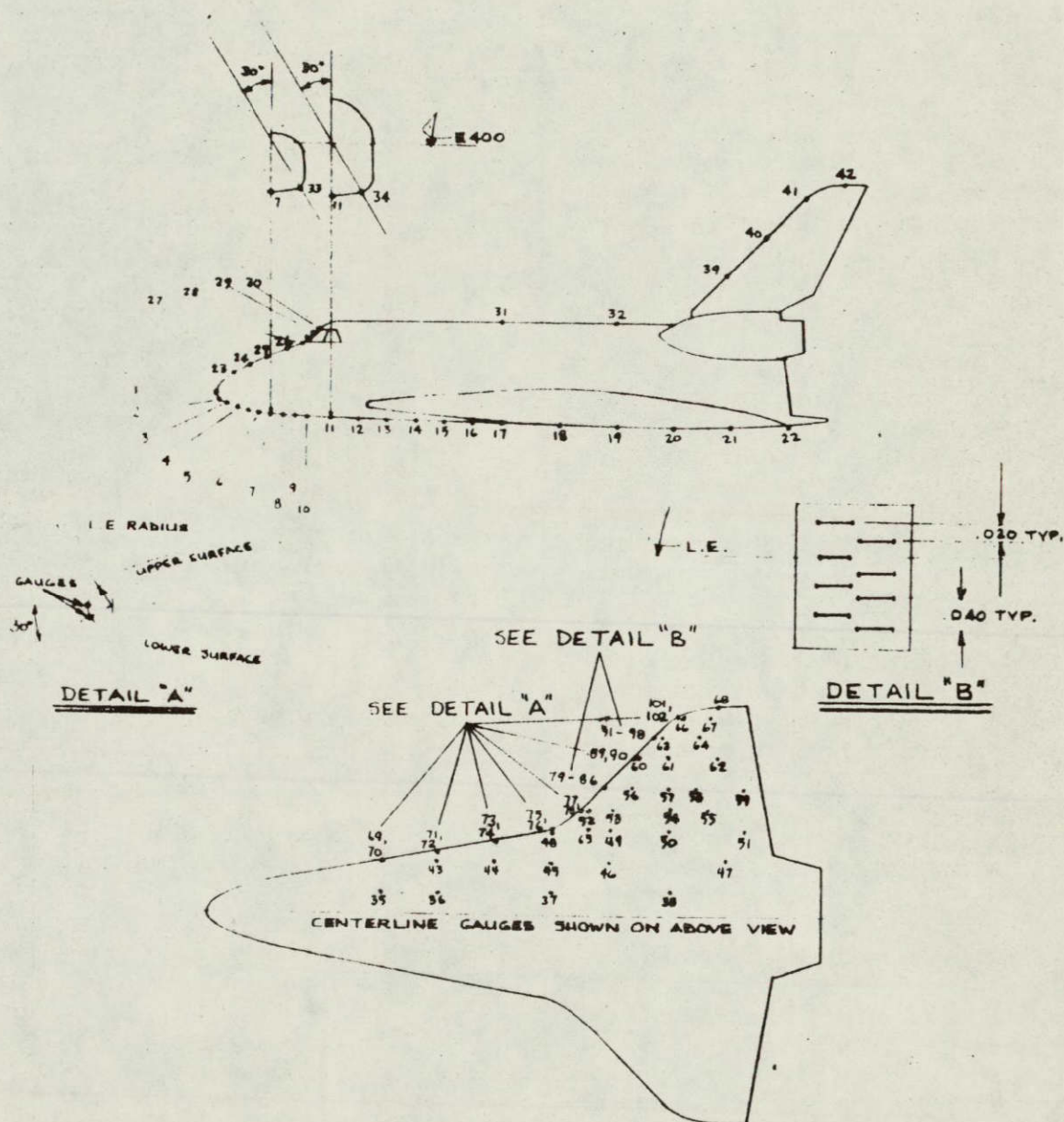


Figure 1. Configuration 3 Orbiter/ET



a. Model 37-T Instrumentation Locations

Figure 2. - Model instrumentation.



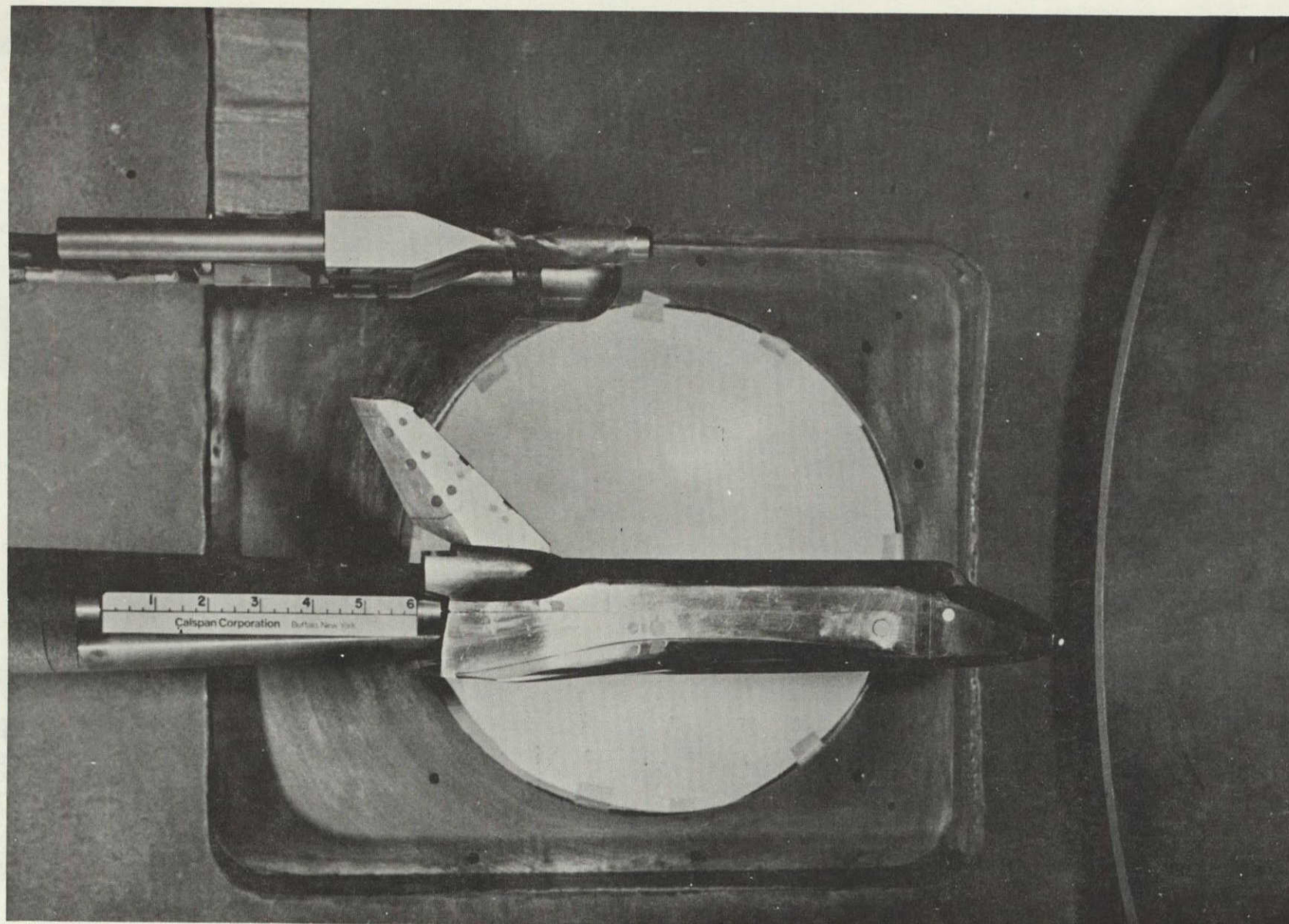
b. 37-0 Instrumentation Locations

Figure 2. - Concluded.

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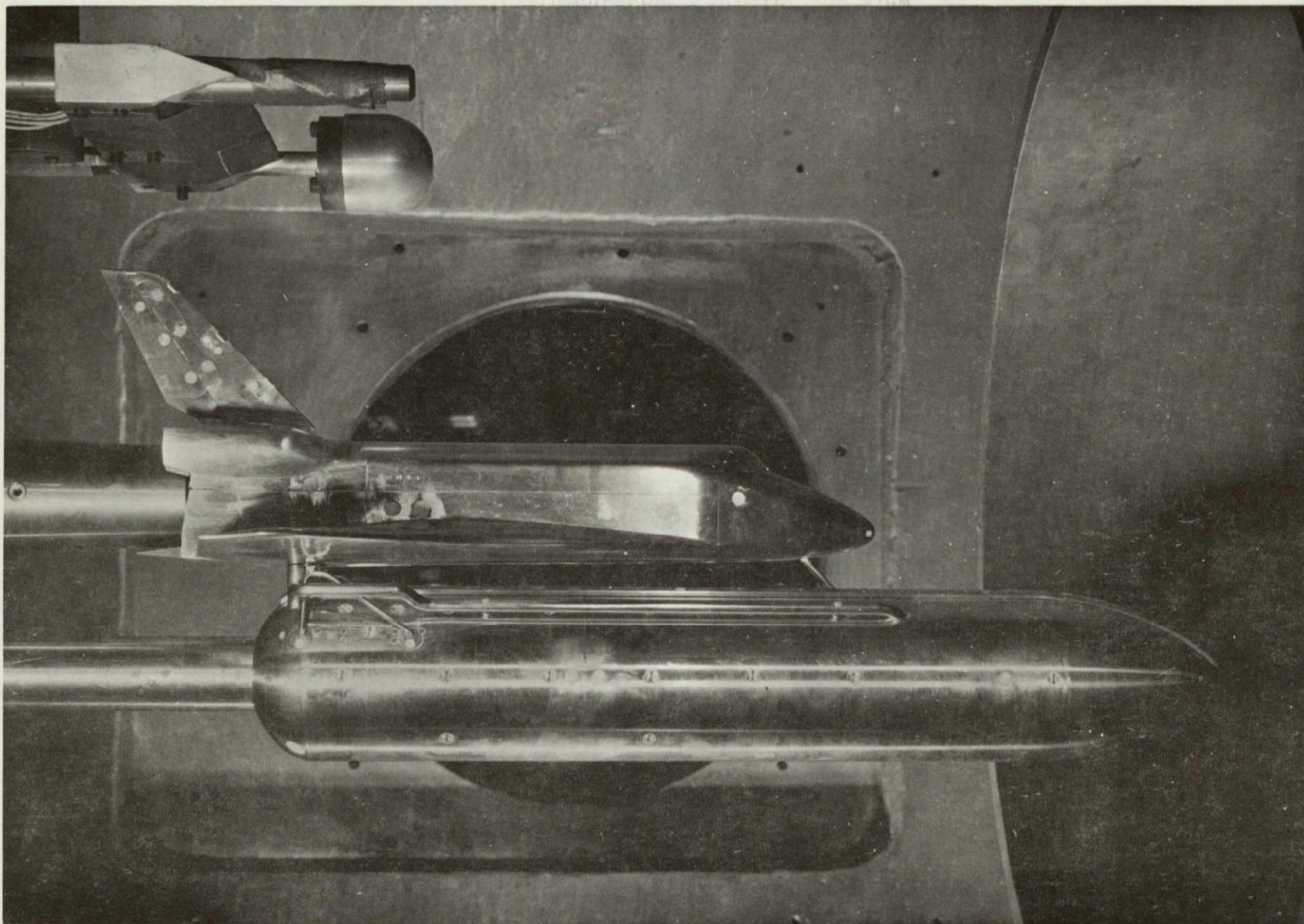
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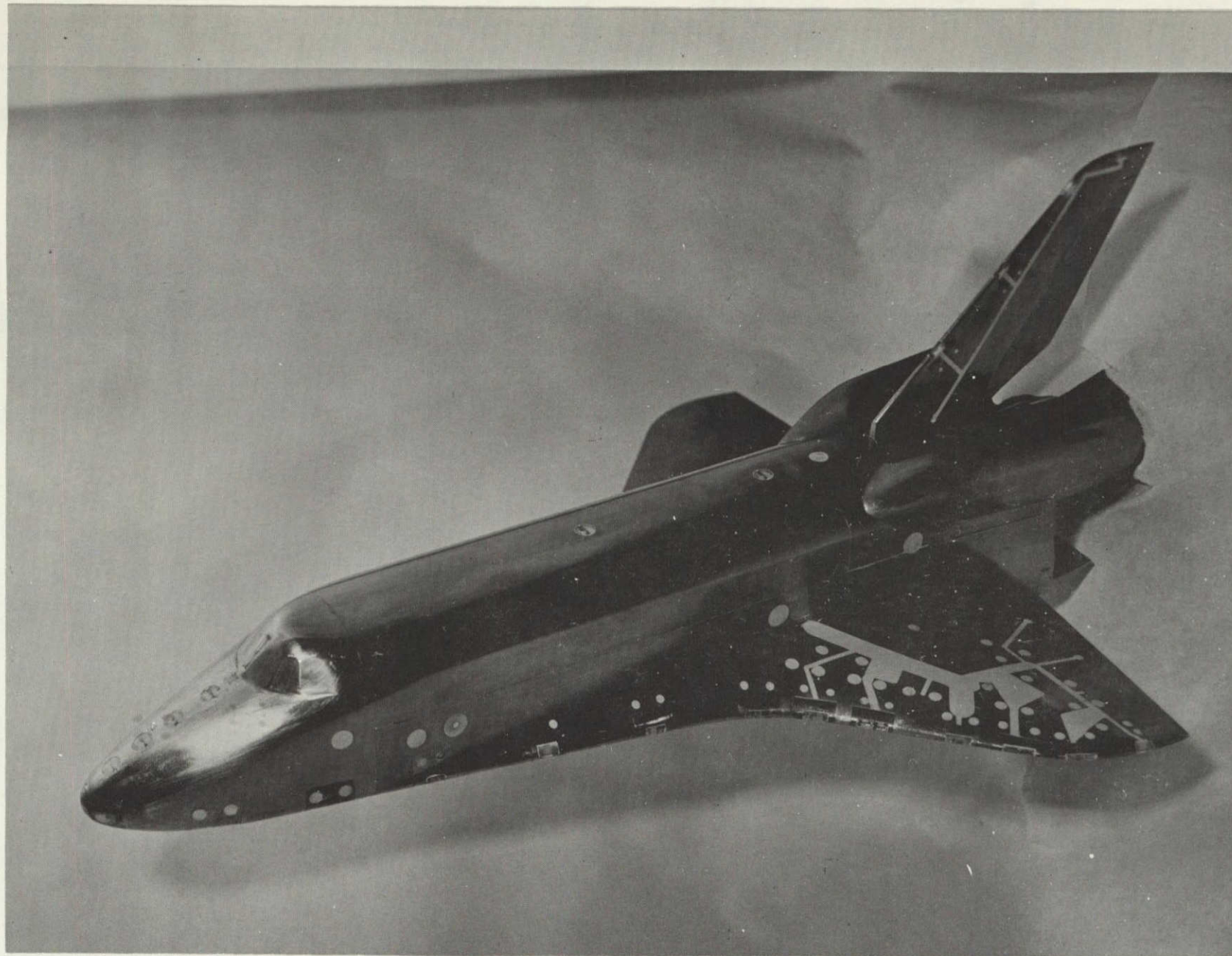
a. Installation of model 37-0 - Orbiter Alone

Figure 3.- Model photographs.



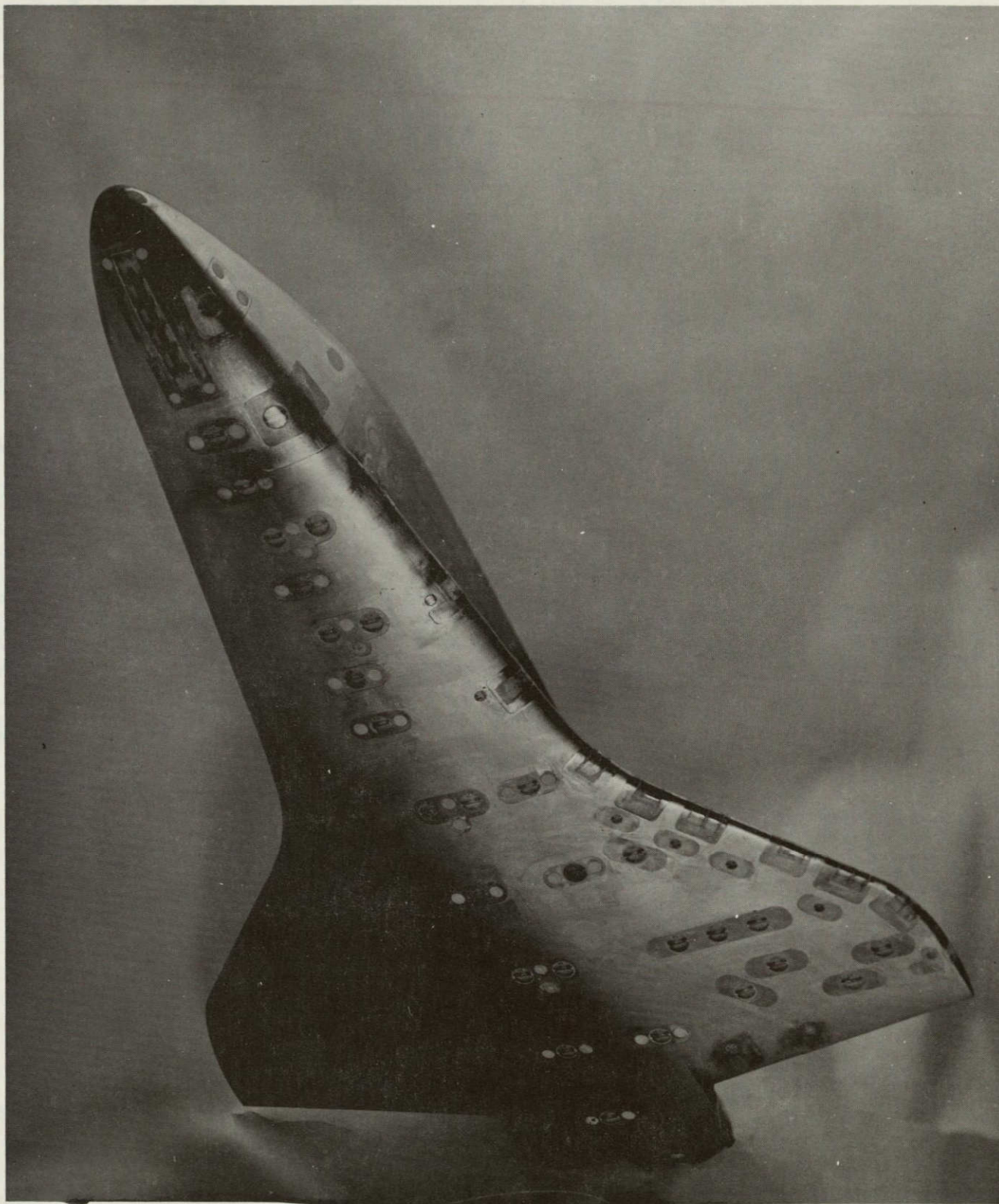
b. Installation of Model 37-OT - Orbiter/Tank

Figure 3. - Continued.



c. Instrumentation - Orbiter Top View

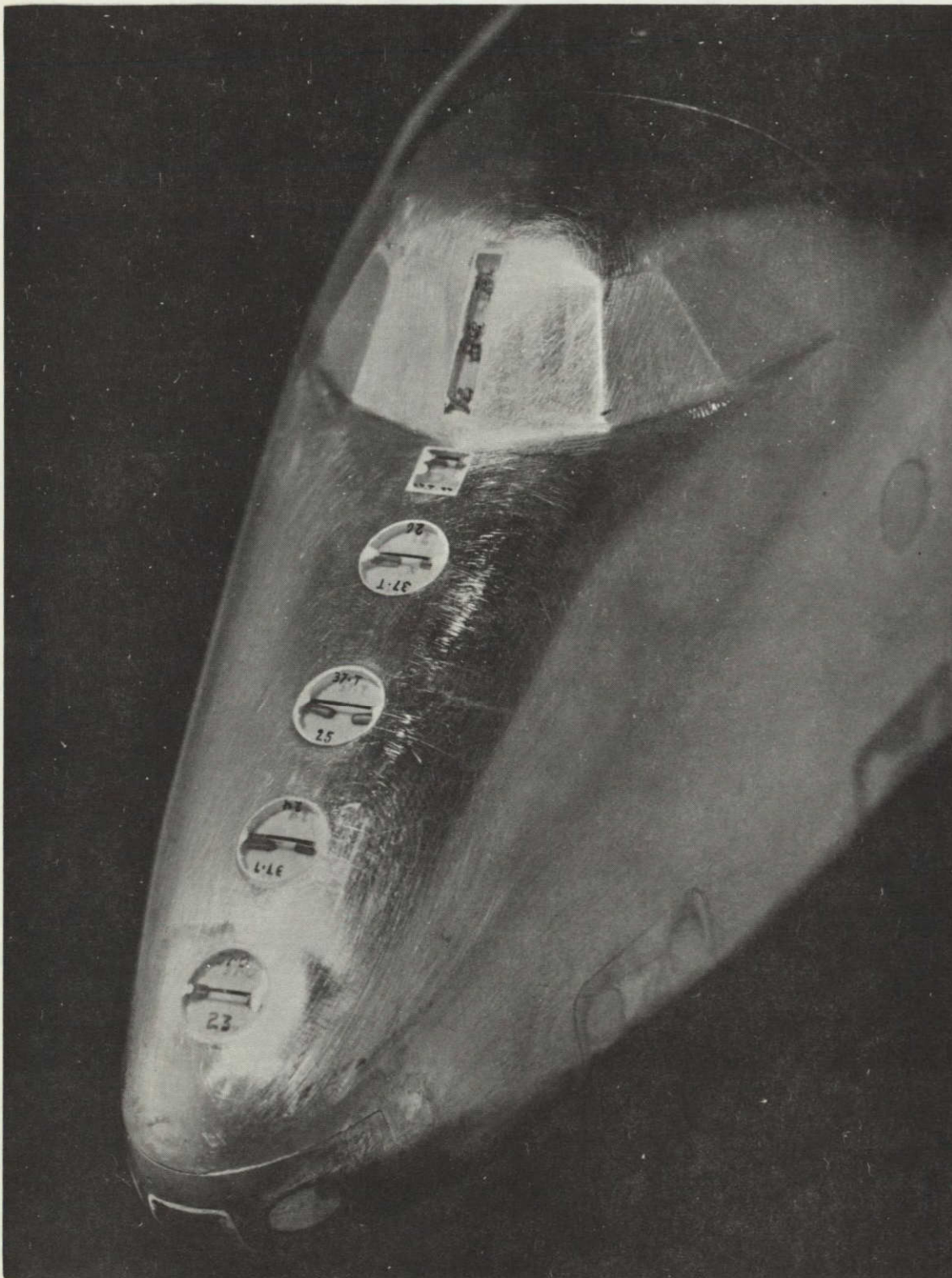
Figure 3. - Continued.



d. Instrumentation - Orbiter Bottom Surface

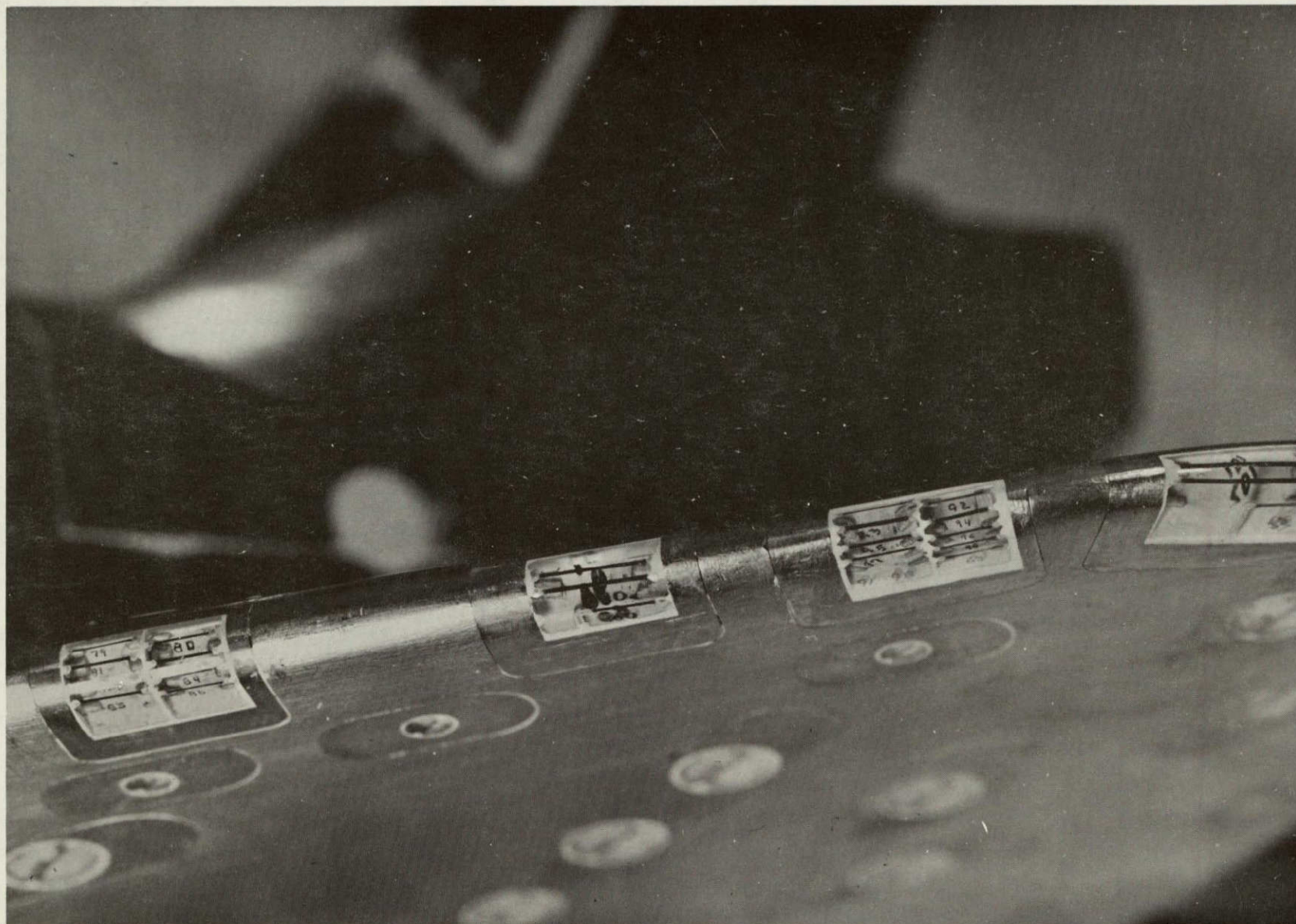
Figure 3. - Continued.

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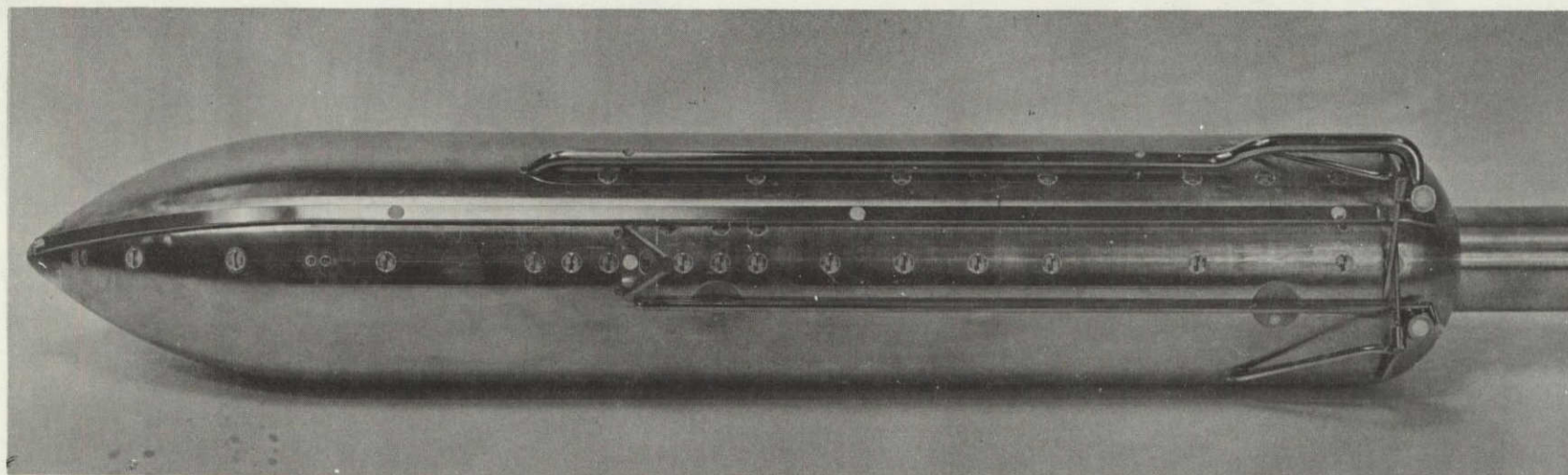
e. Instrumentation - Orbiter Nose and Canopy

Figure 3. - Continued.



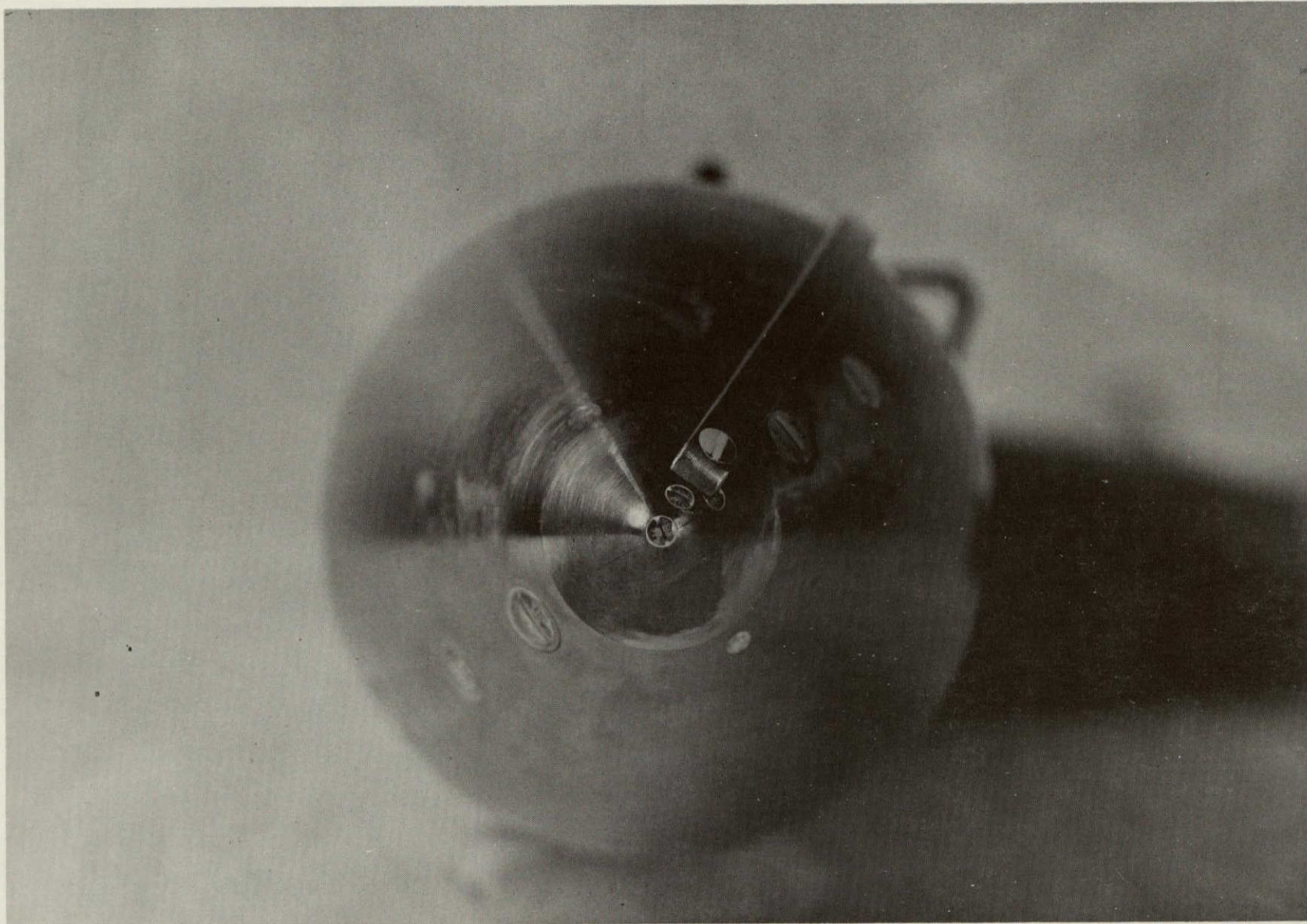
f. Instrumentation - Orbiter Wing Leading Edge

Figure 3. - Continued.



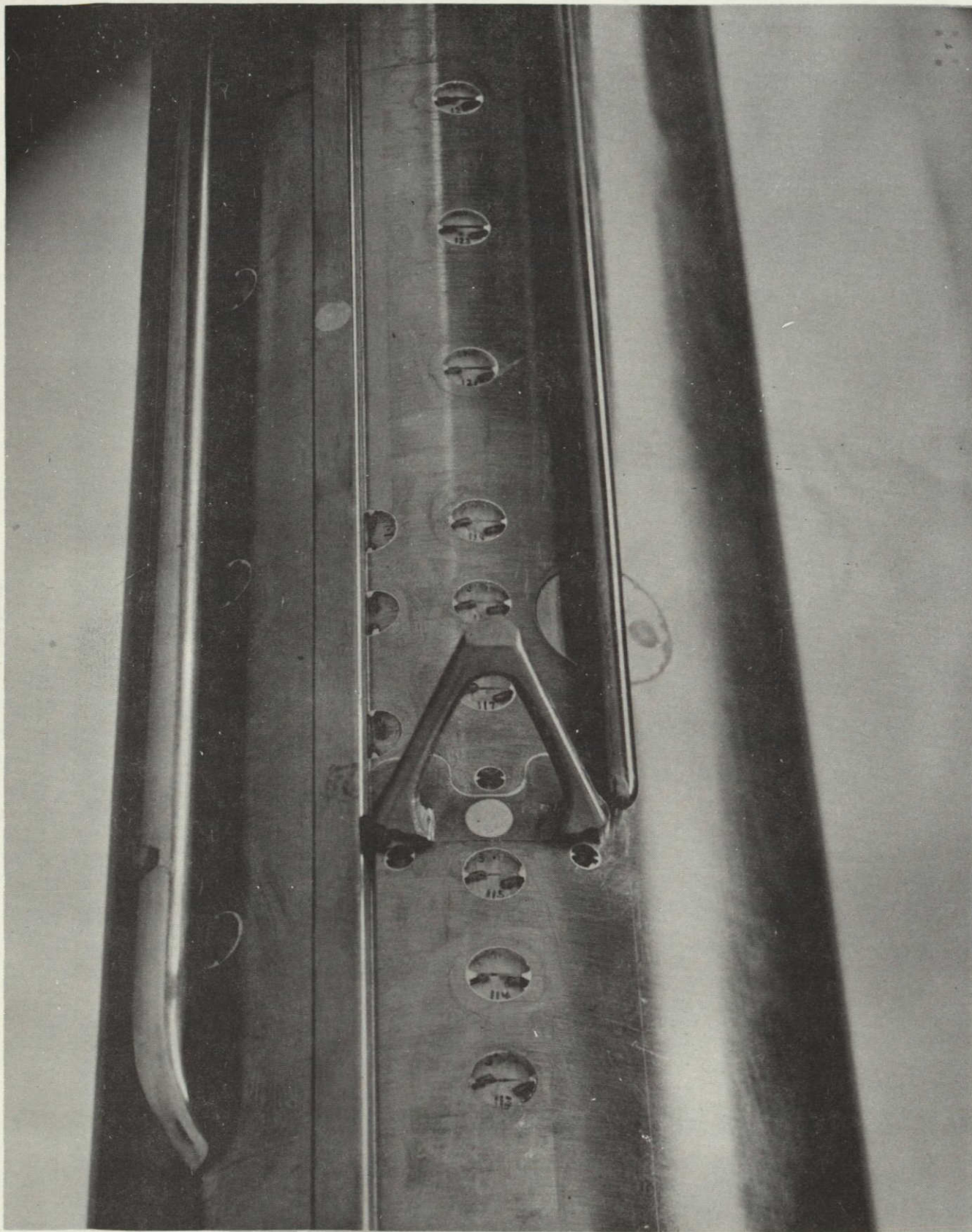
g. Instrumentation - Tank Top View

Figure 3. - Continued.

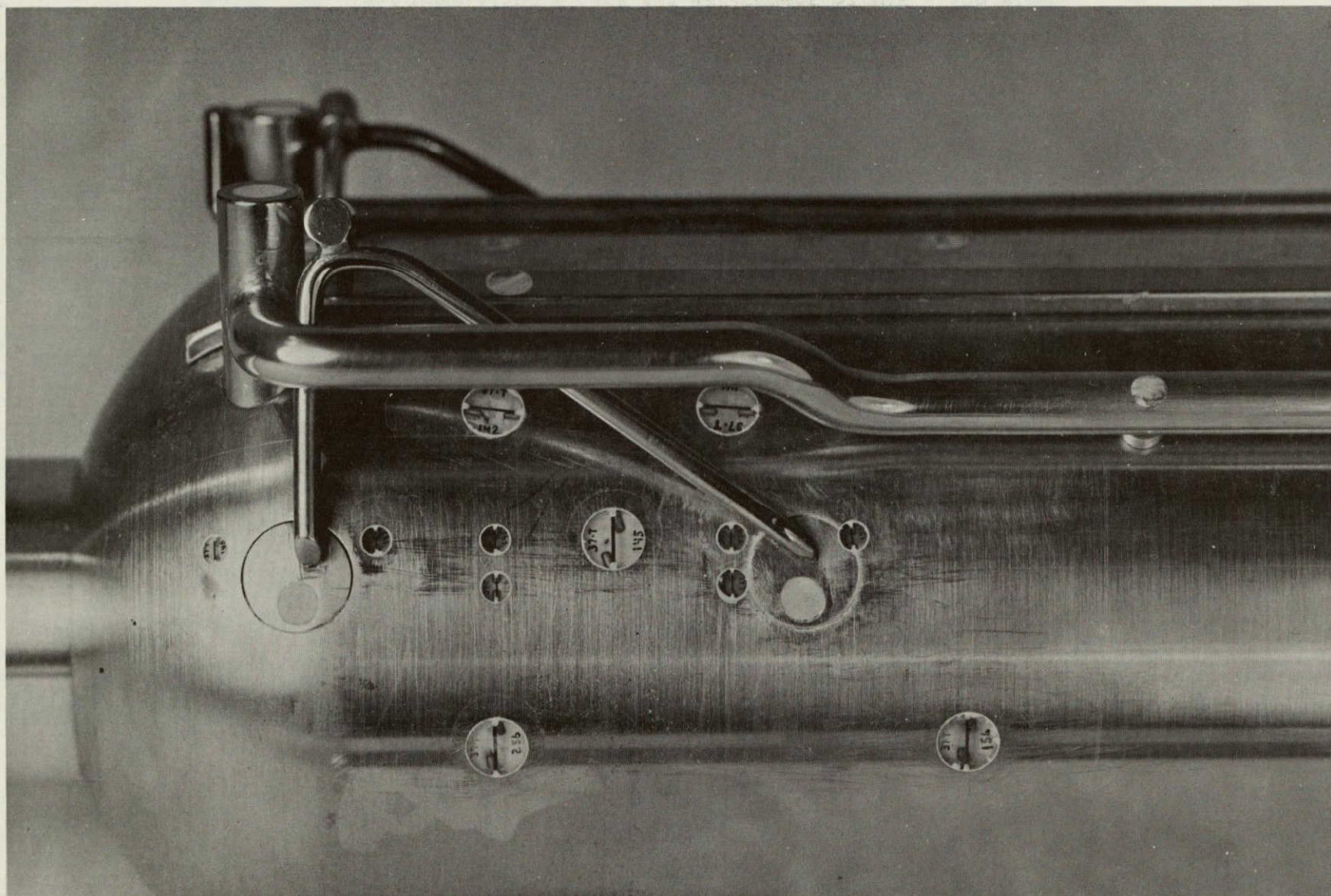


h. Instrumentation - Tank Nose

Figure 3. - Continued.

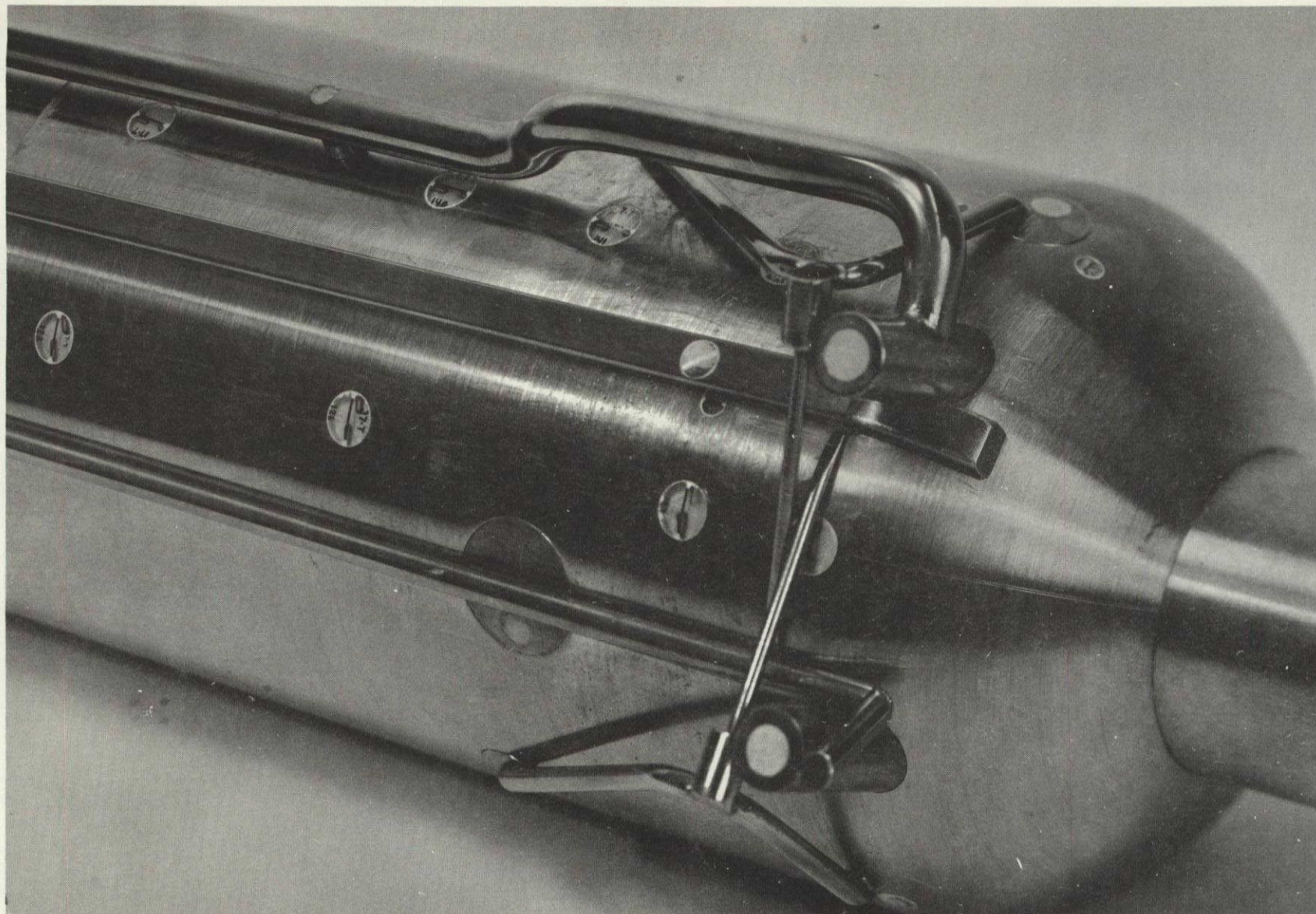


i. Instrumentation - Tank Forward Attachment Strut
Figure 3. - Continued.



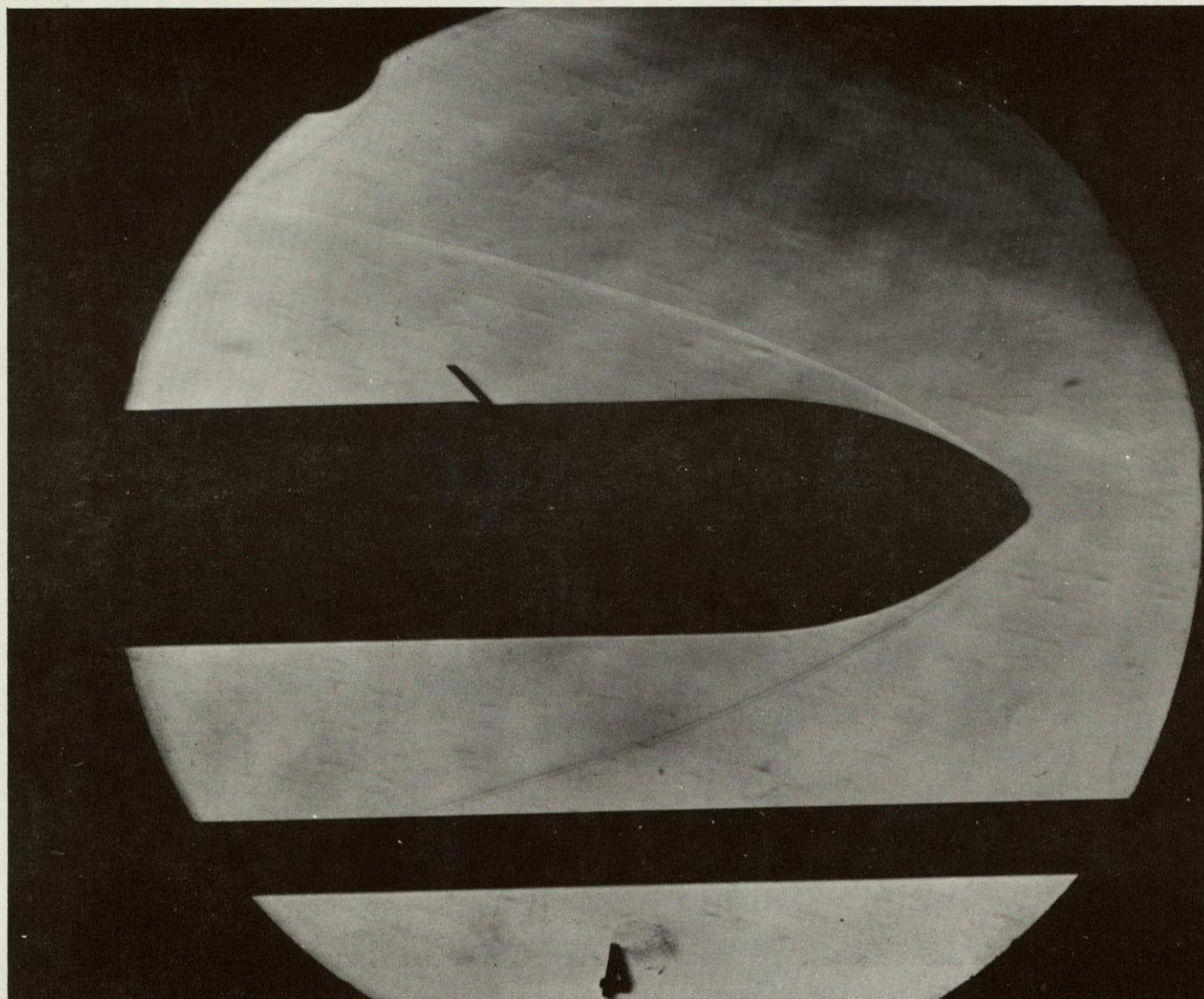
j. Instrumentation - Tank Aft Attachment Struts - Side View

Figure 3. - Continued.



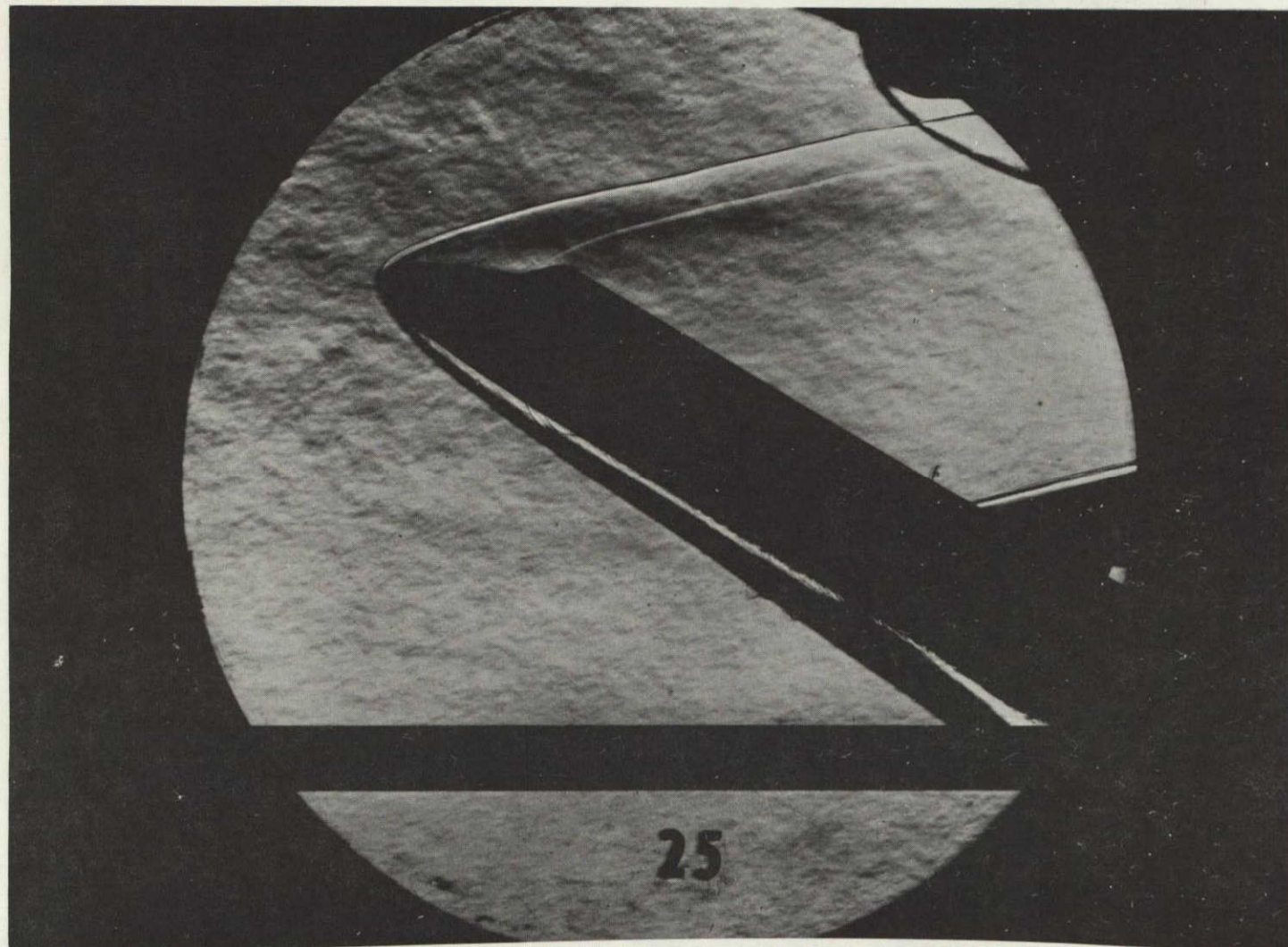
k. Instrumentation - Tank Aft Attachment Struts - Top View

Figure 3. - Continued.



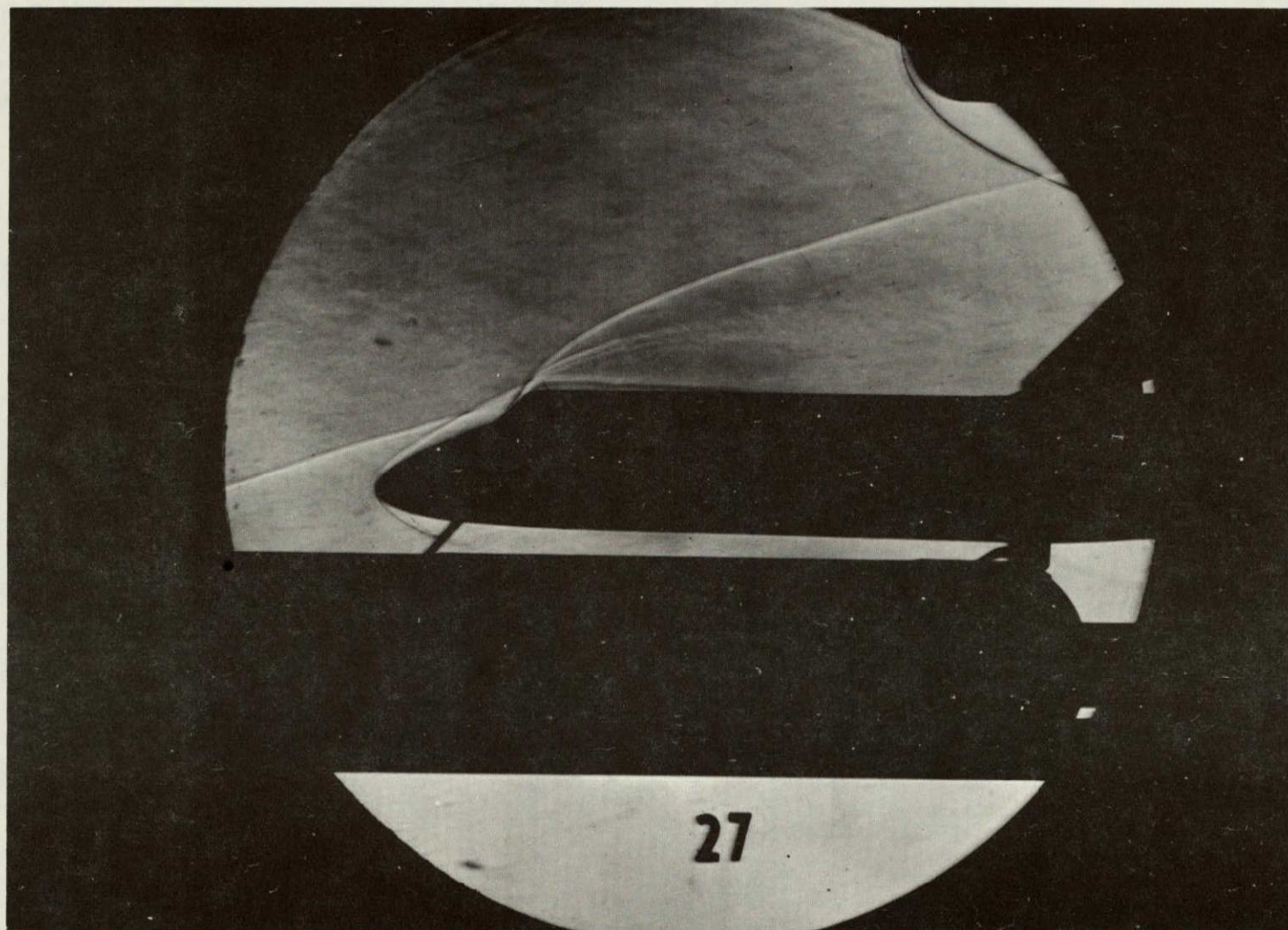
1. Sample Schlieren, Tank Alone, Run 4, $\alpha = 0^\circ$, $M_\infty = 6.99$, $R_e/ft = 0.12 \times 10^6$

Figure 3. - Continued.



m. Sample Schlieren, Orbiter Alone, Run 25, $\alpha = 30^\circ$, $M_\infty = 7.92$, $R_e/ft = 7.55 \times 10^6$

Figure 3. - Continued.



n. Sample Schlieren, Orbiter/Tank, Run 27, $\alpha = 0^\circ$, $M_\infty = 7.61$, $R_e/ft = 1.20 \times 10^6$

Figure 3. - Concluded.

DATA FIGURES

VOLUME 2--Figures 18-35

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUG808)	DATA NOT AVAILABLE	5.000	.000
(RUG809)	DATA NOT AVAILABLE	10.000	.000
(RUG810)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	25.000

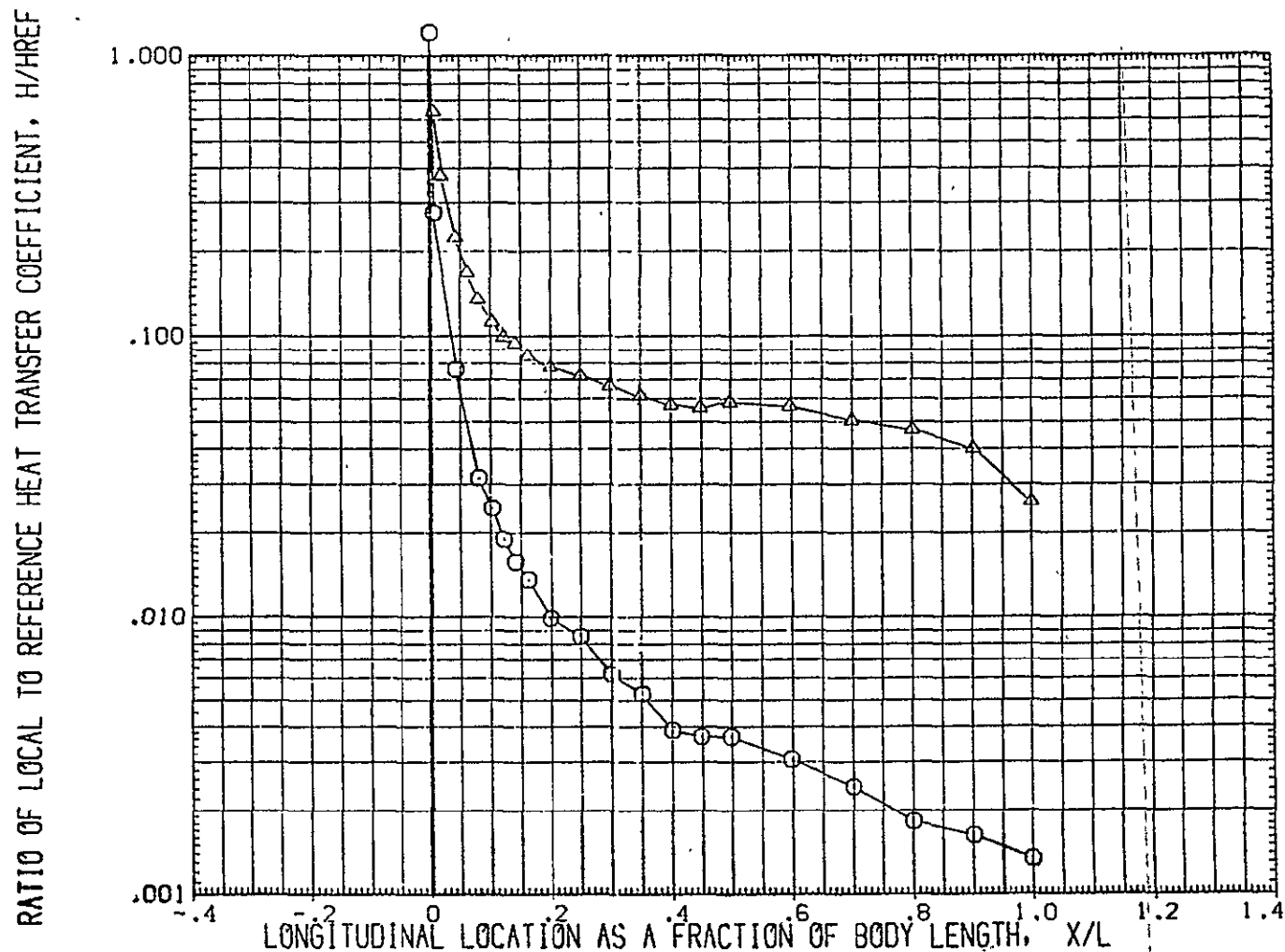


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L1

MACH = 6.980 HAW/HT= .850 PHI = .000

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	FUSELAGE	ALPHA	BETA
(RUG807)	□	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE	.000	.000
(RUG808)	○	DATA NOT AVAILABLE		5.000	.000
(RUG809)	×	DATA NOT AVAILABLE		10.000	.000
(RUG810)	△	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE	25.000	.000

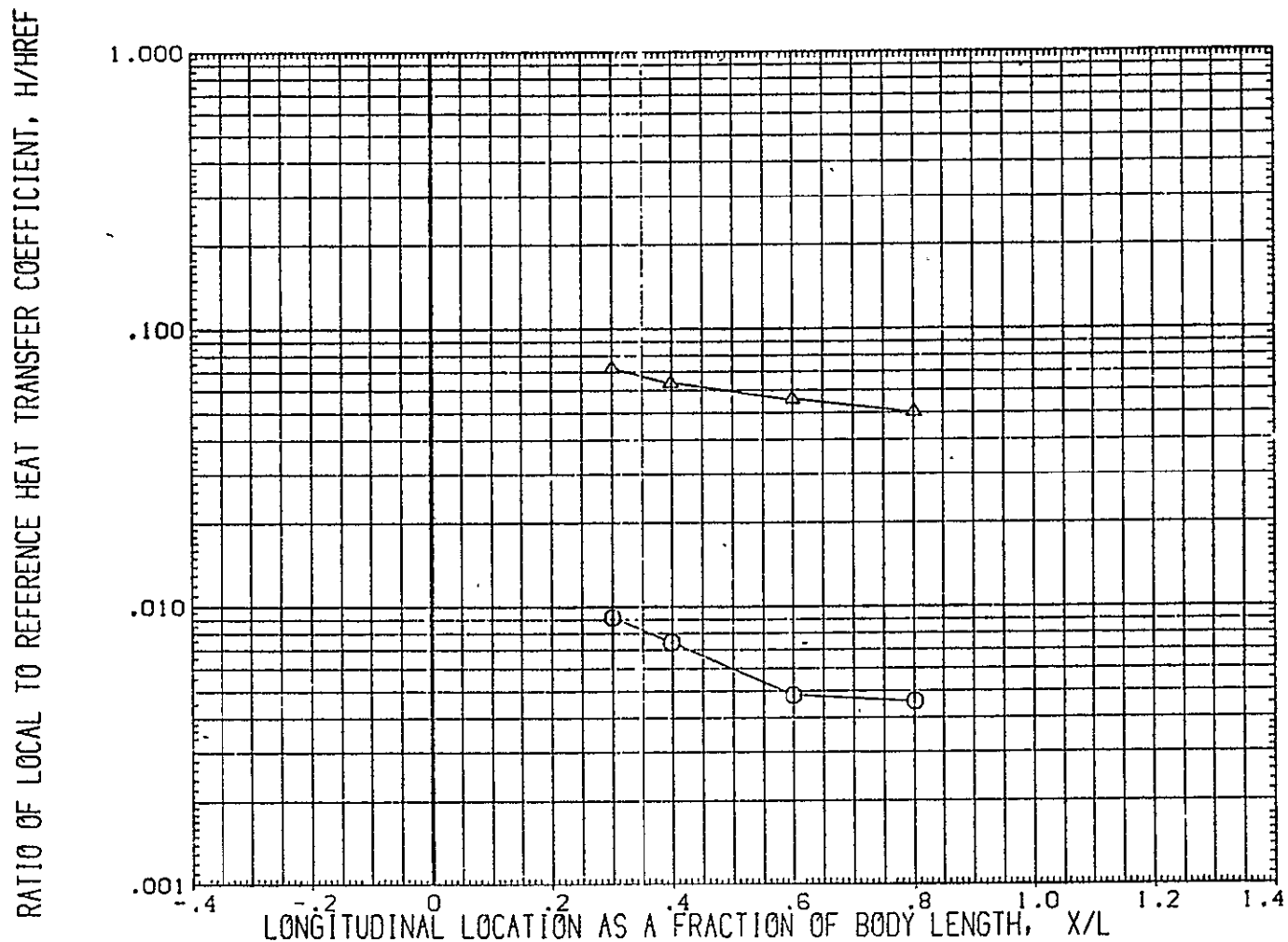


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L

MACH = 6.980 HAW/HT = .850 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB08)	DATA NOT AVAILABLE	5.000	.000
(RUGB09)	DATA NOT AVAILABLE	10.000	.000
(RUGB10)	OH12/1H21 (CAL PST 173-100) 37 0 FUSELAGE	25.000	.000

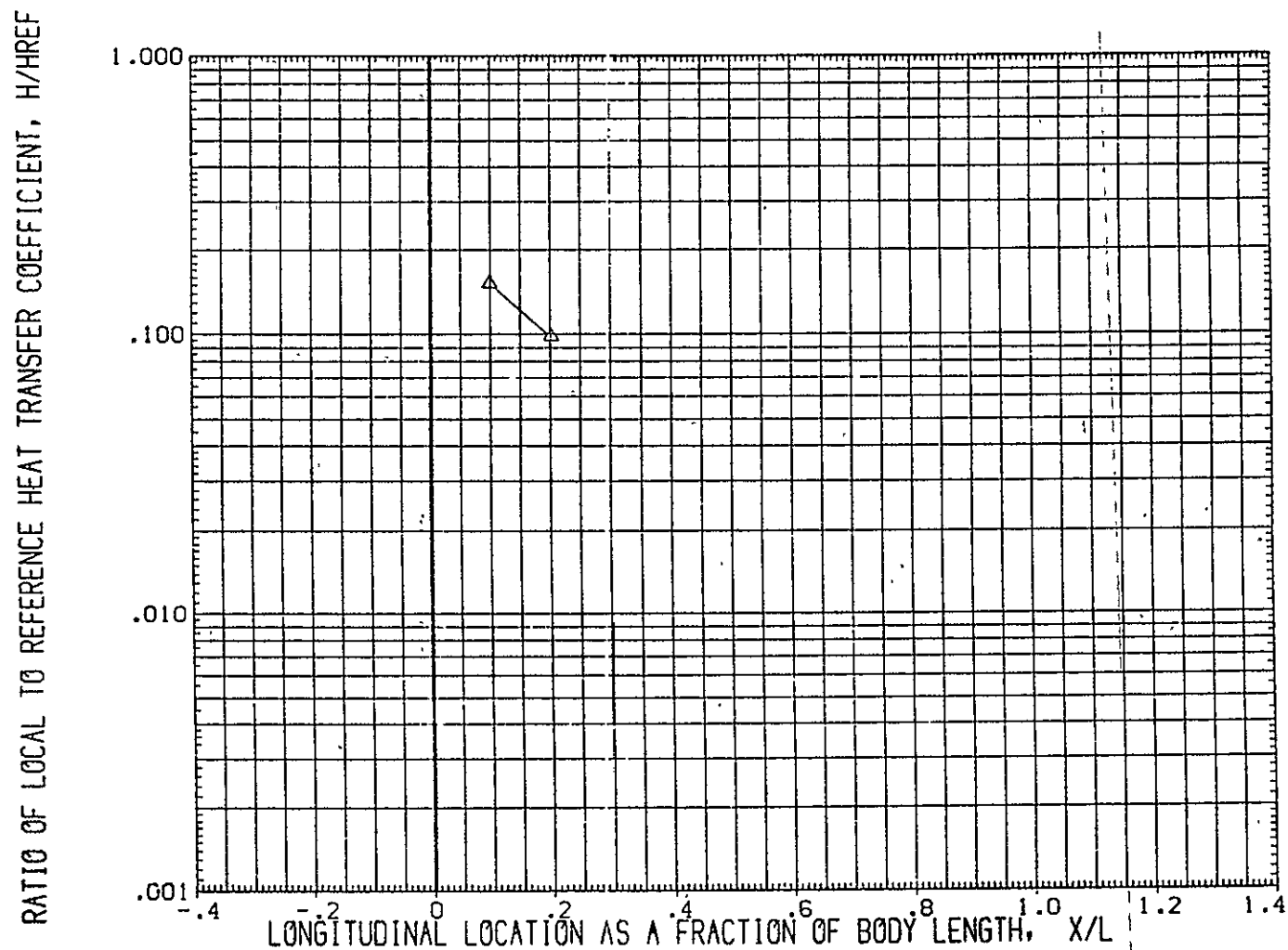


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = .850 PHI = 30.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	OH12/1H2: (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUG808)	DATA NOT AVAILABLE	5.000	.000
(RUG809)	DATA NOT AVAILABLE	10.000	.000
(RUG810)	OH12/1H2: (CAL HST 173-100) 37 0	FUSELAGE	25.000

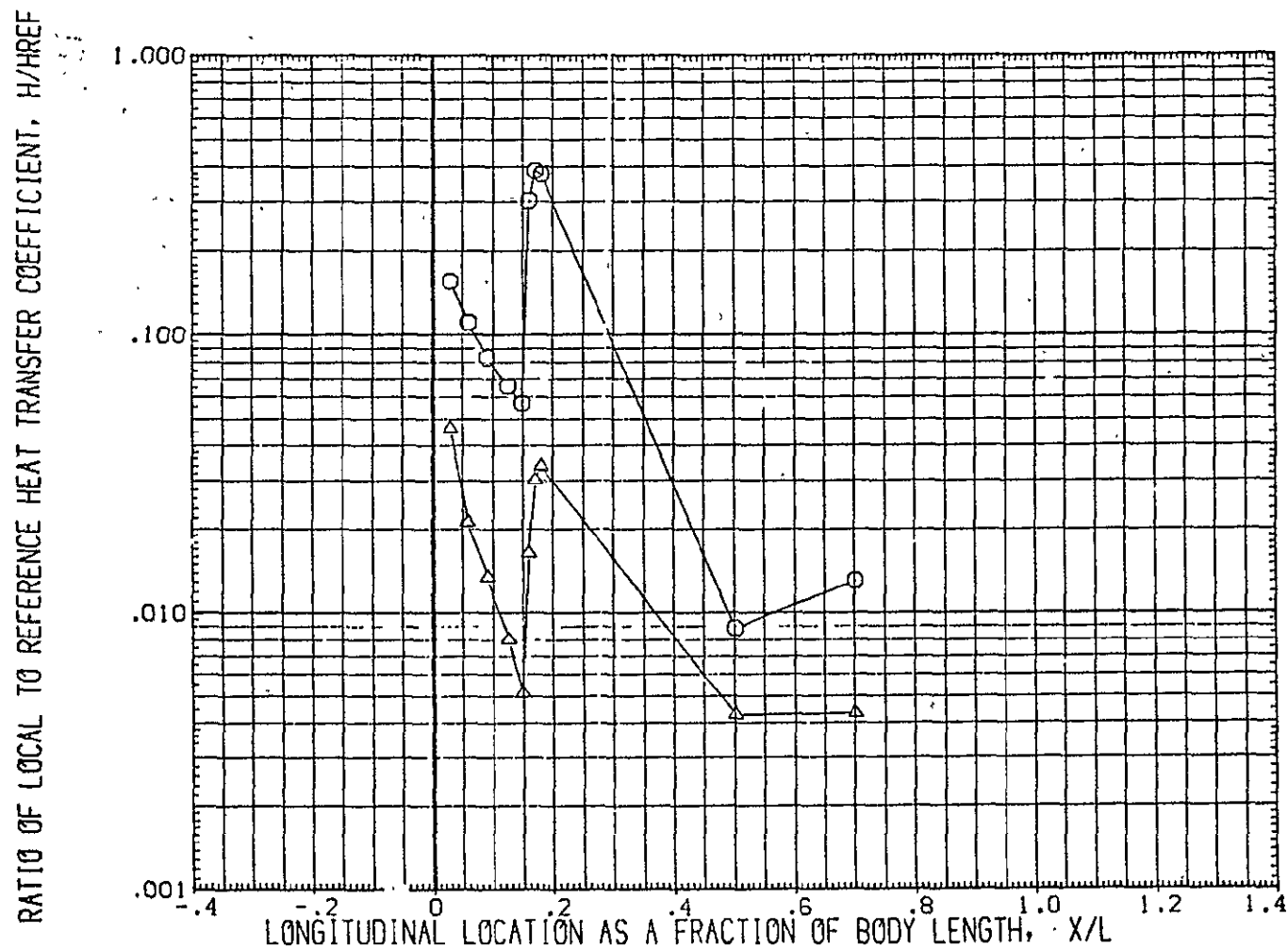


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = .850 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	OH12/1H21 (CAL HST 173-100) 37 0	FUSEL AGE	.000
(RUGB08)	DATA NOT AVAILABLE	5.000	.000
(RUGB09)	DATA NOT AVAILABLE	10.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	FUSEL AGE	25.000

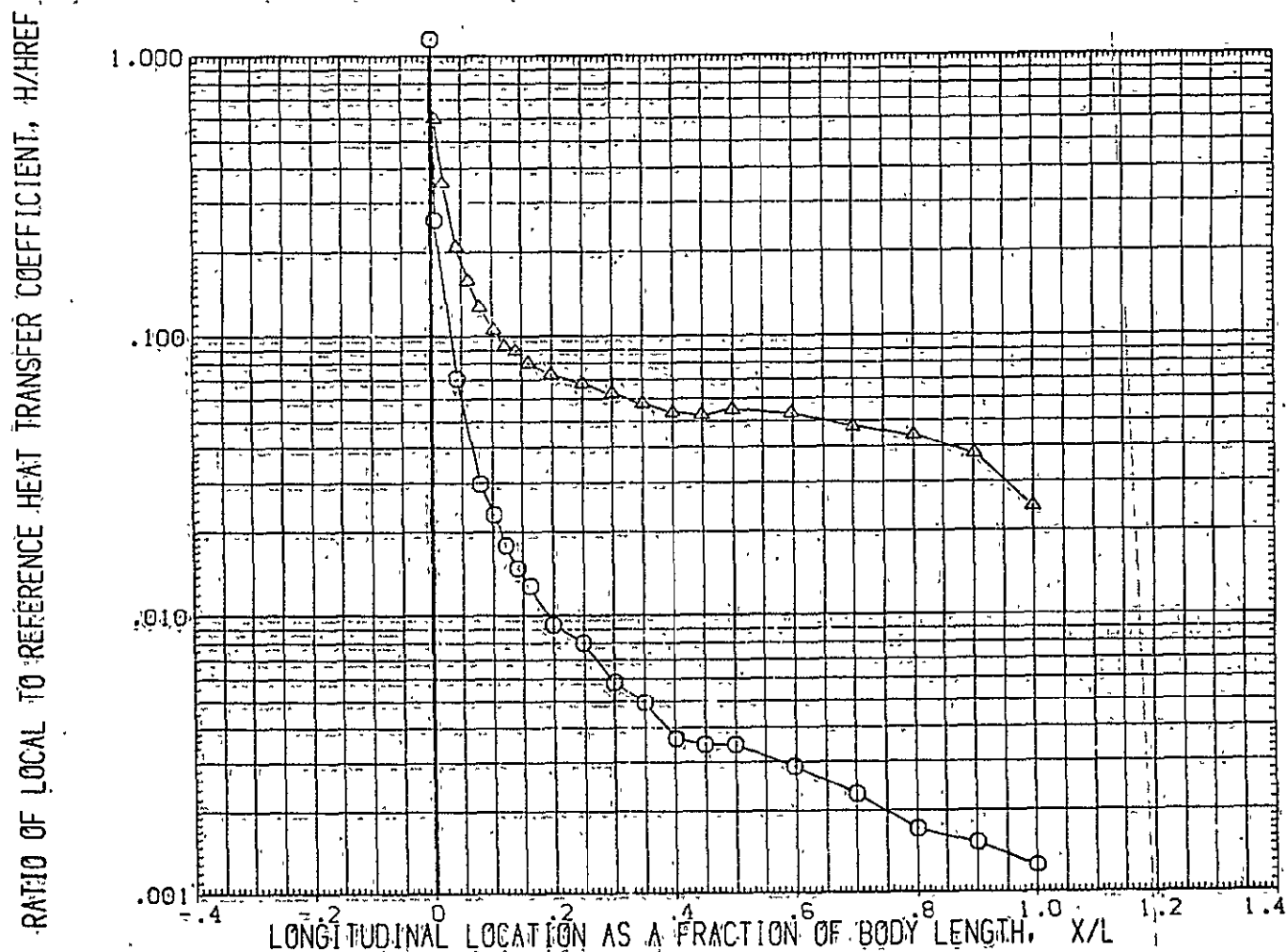


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER h/h_{ref}

MACH = 6.980 HAW/HT = .900 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	BETA
(RUG807)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000	.000
(RUG808)	DATA NOT AVAILABLE		5.000	.000
(RUG809)	DATA NOT AVAILABLE		10.000	.000
(RUG810)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	25.000	.000

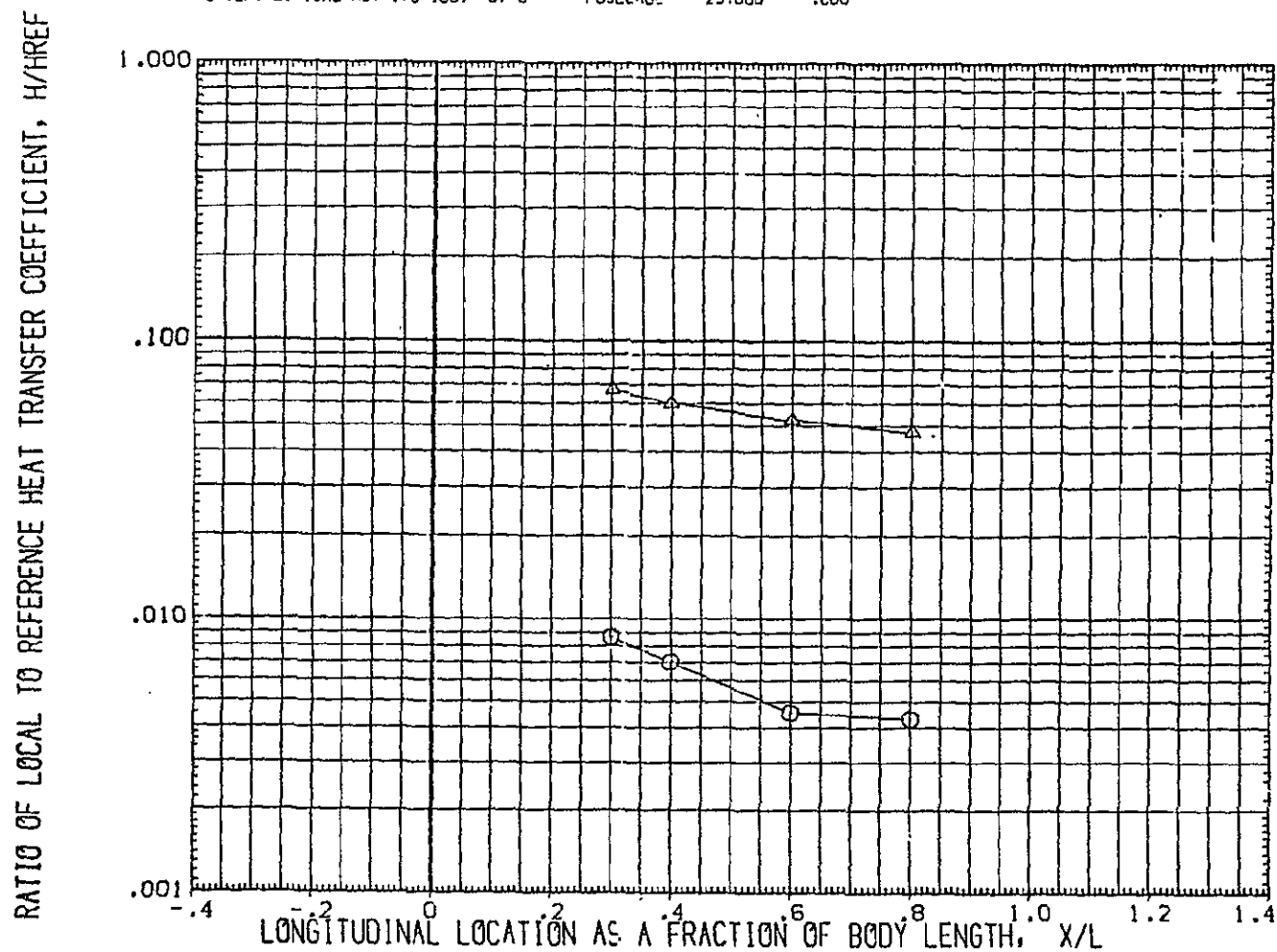


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = .900 PHI = 25.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUSB07)	DATA NOT AVAILABLE	.000	.000
(PLGB08)	DATA NOT AVAILABLE	5.000	.000
(RUSB09)	DATA NOT AVAILABLE	10.000	.000
(RUSB10)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000

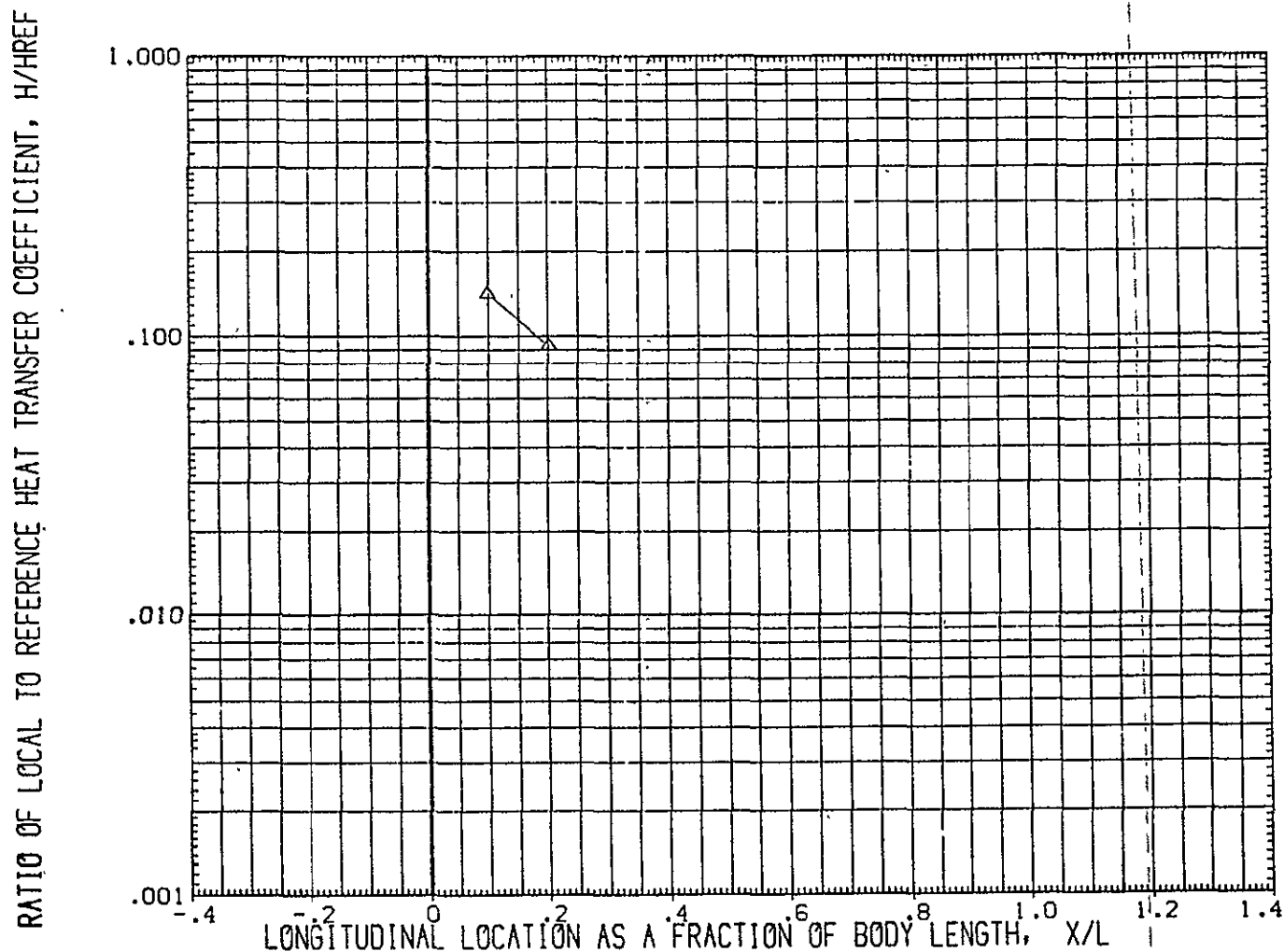


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L1

MACH = 6.980 HAW/HT = .900 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUG808)	DATA NOT AVAILABLE	5.000	.000
(RUG809)	DATA NOT AVAILABLE	10.000	.000
(RUG810)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE	25.000

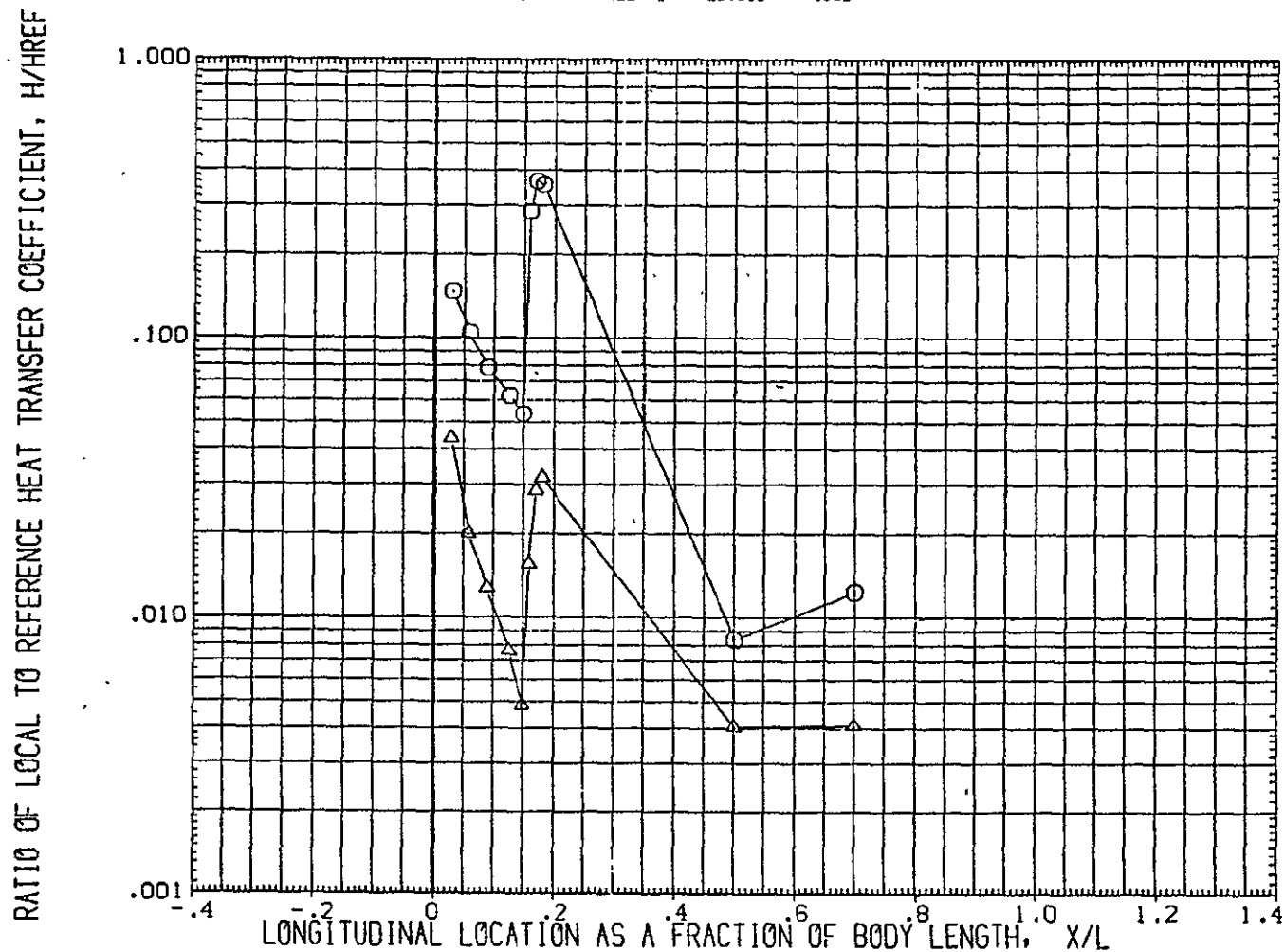


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = .900 PHI = 180.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	○	CH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUGB08)	×	DATA NOT AVAILABLE	5.000	.000
(RUGB09)	×	DATA NOT AVAILABLE	10.000	.000
(RUGB10)	△	CH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	25.000

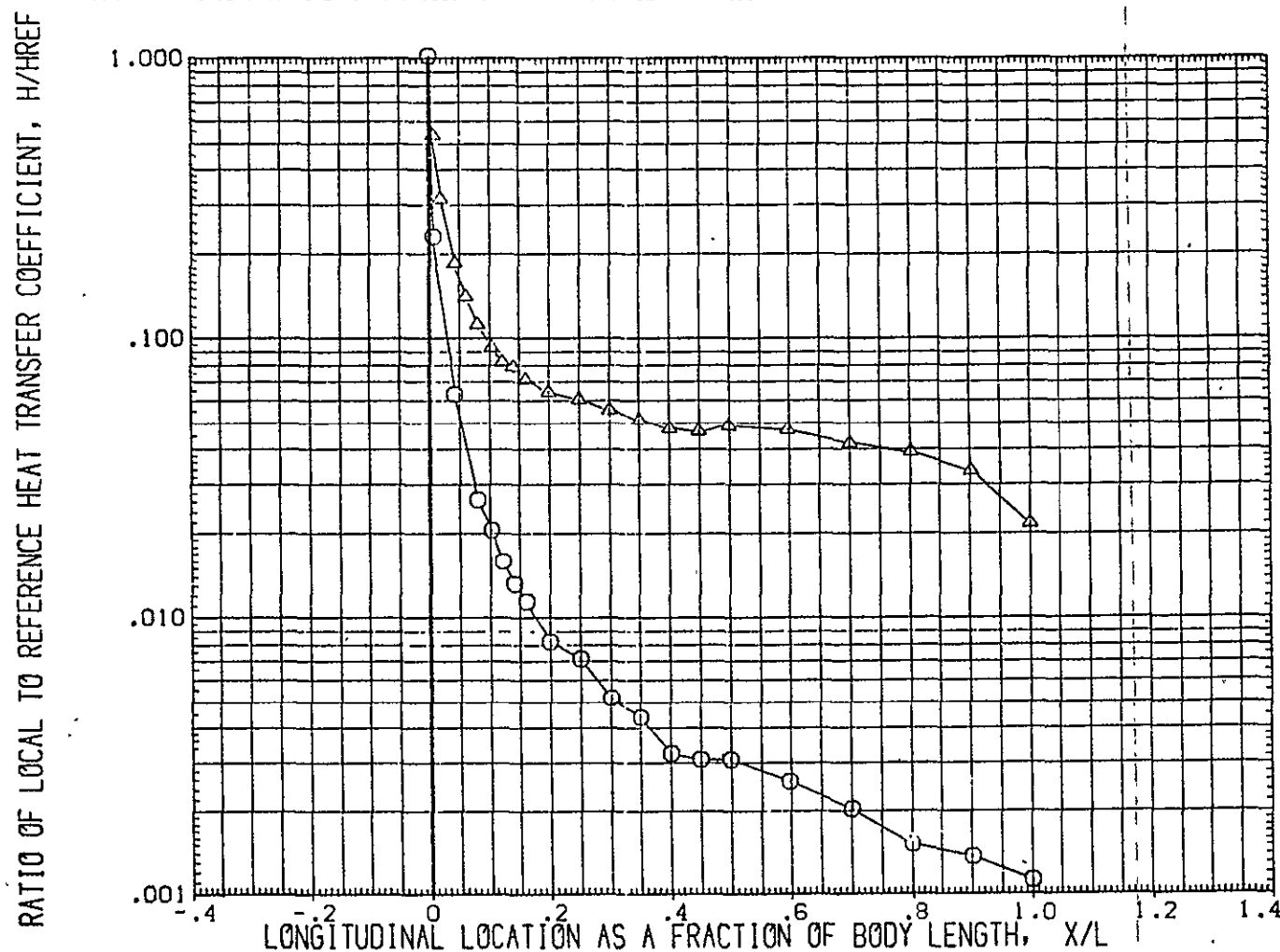


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER | RN/L1

MACH = 6.980 HAW/HT = 1.000 PHI = .000

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	□	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUG808)	×	DATA NOT AVAILABLE		.000
(RUG809)	×	DATA NOT AVAILABLE		.000
(RUG810)	△	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	25.000

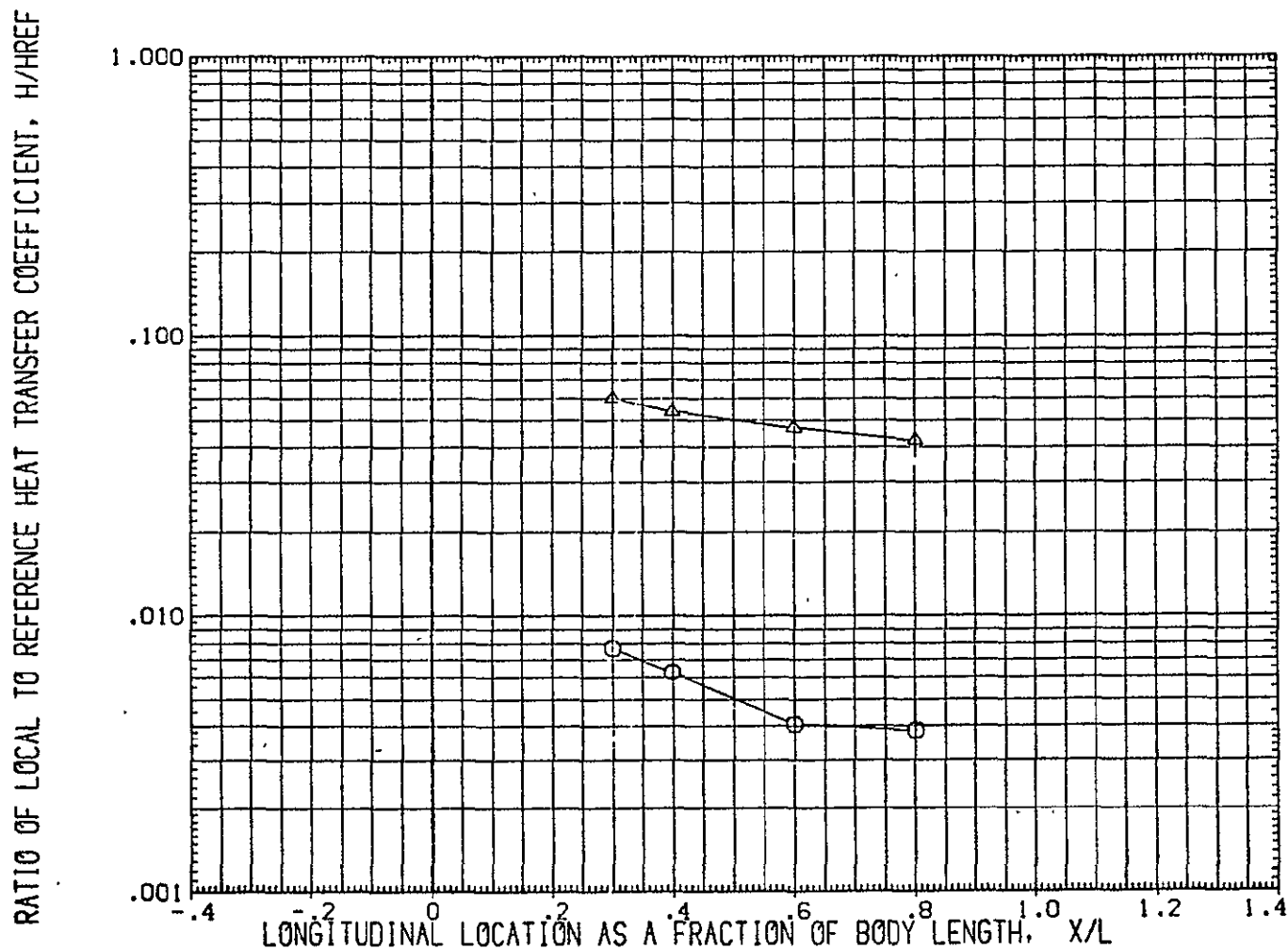


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT= 1.000 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	DATA NOT AVAILABLE	.000	.030
(RUG808)	DATA NOT AVAILABLE	5.000	.030
(RUG809)	DATA NOT AVAILABLE	10.000	.000
(RUG810)	0412/H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.030

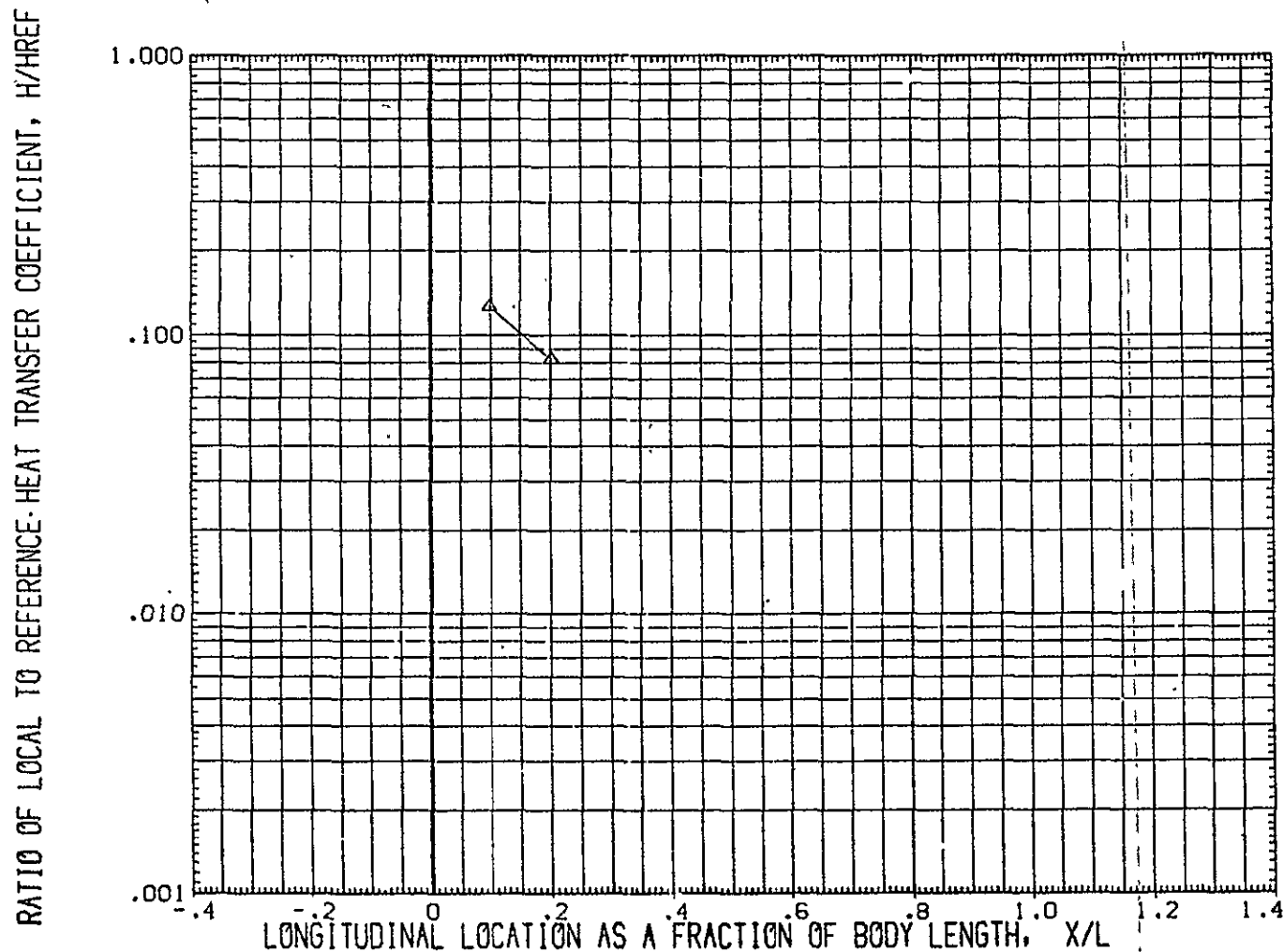


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = 1.000 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
{RUG807}	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
{RUG808}	DATA NOT AVAILABLE	5.000	.000
{RUG809}	DATA NOT AVAILABLE	10.000	.000
{RUG810}	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000

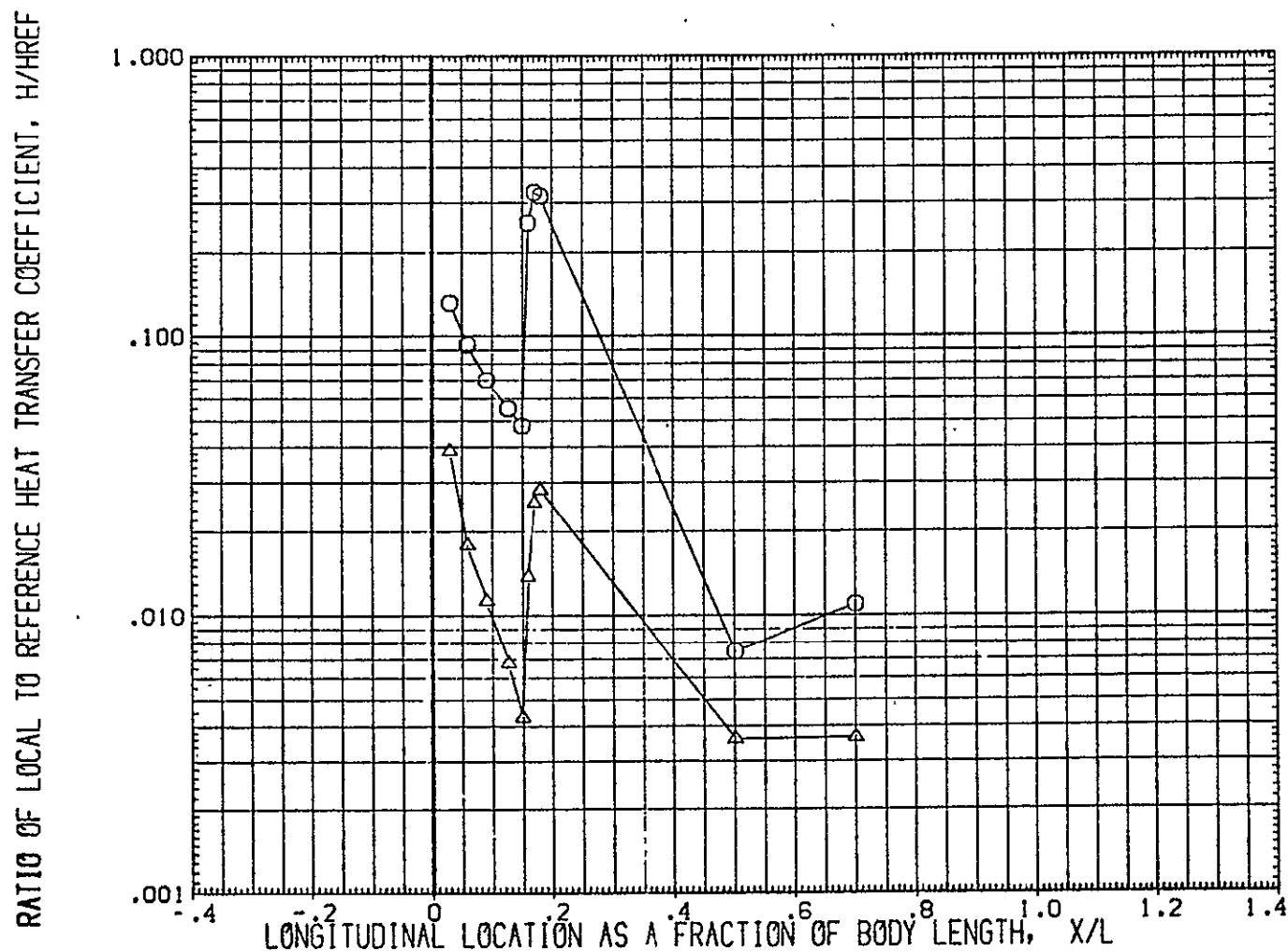


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT= 1.000 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
[RUG807]	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
[RUG808]	DATA NOT AVAILABLE	5.000	.000
[RUG809]	DATA NOT AVAILABLE	10.000	.000
[RUG810]	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	25.000

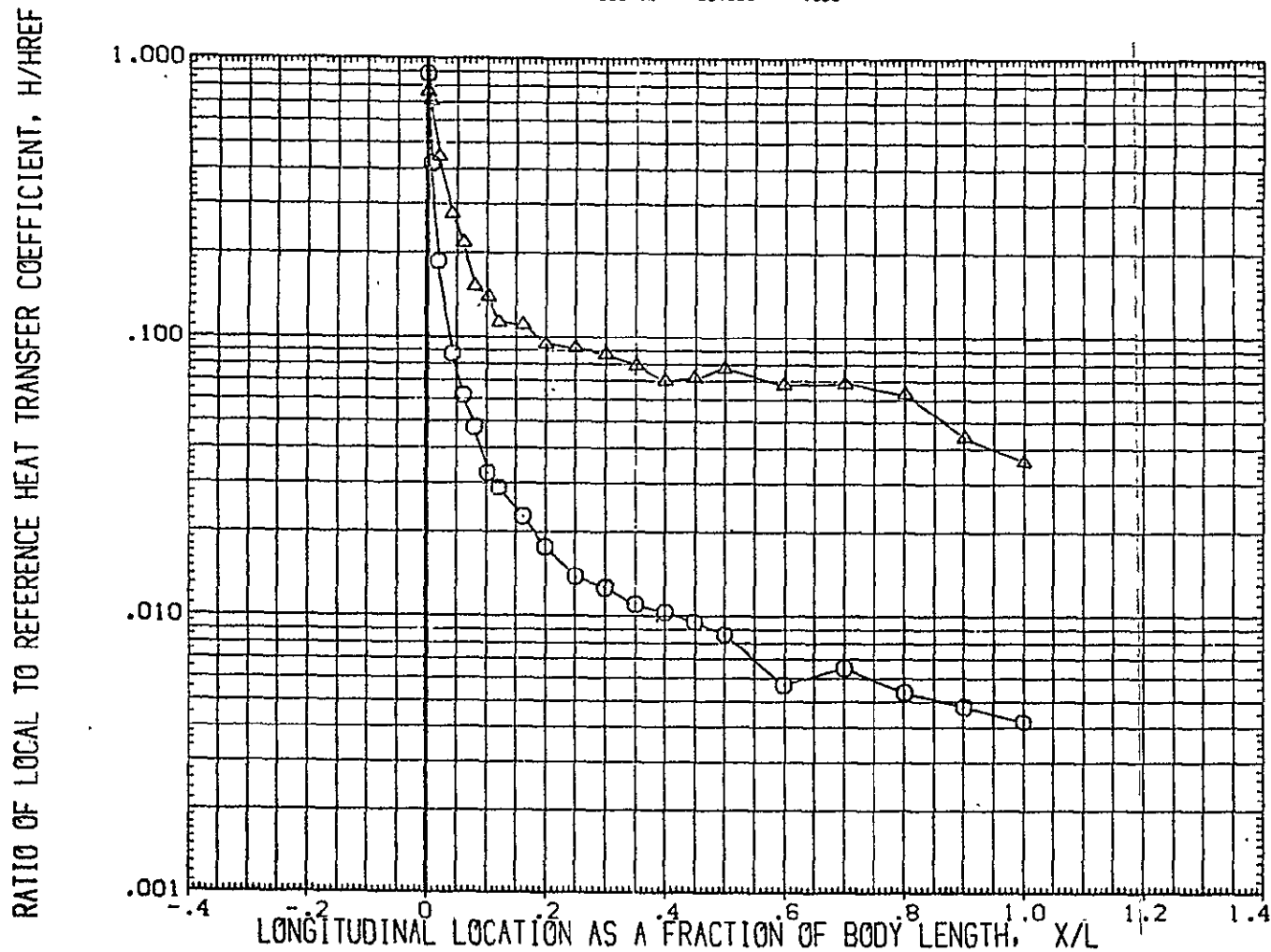


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 16.040 HAW/HT = .850 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUGB08)	DATA NOT AVAILABLE	5.000	.000
(RUGB09)	DATA NOT AVAILABLE	10.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	25.000

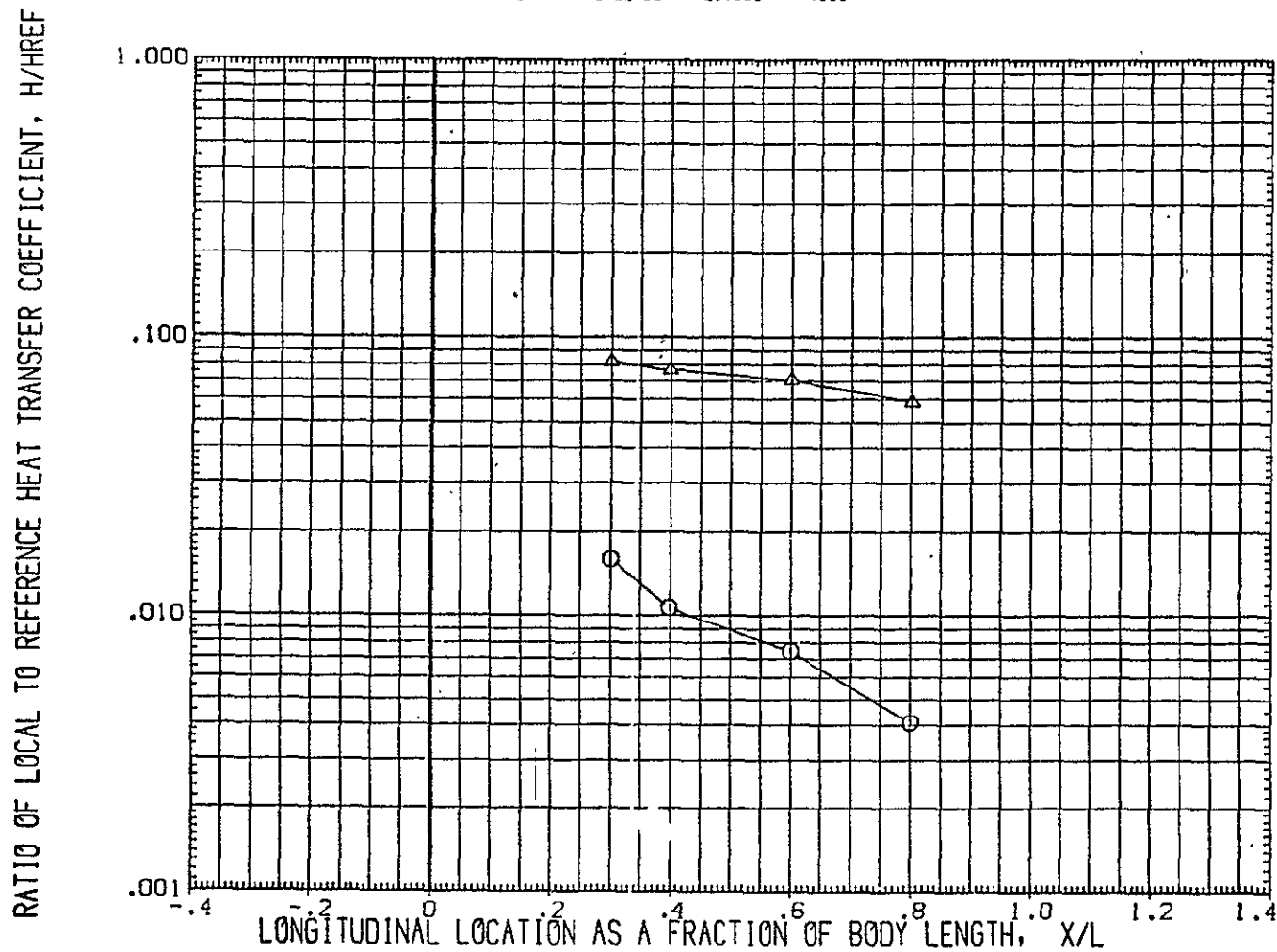


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L_1

MACH = 16.040 HAW/HT = .850 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUG808)	DATA NOT AVAILABLE	5.000	.000
(RUG809)	DATA NOT AVAILABLE	10.000	.000
(RUG810)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	25.000

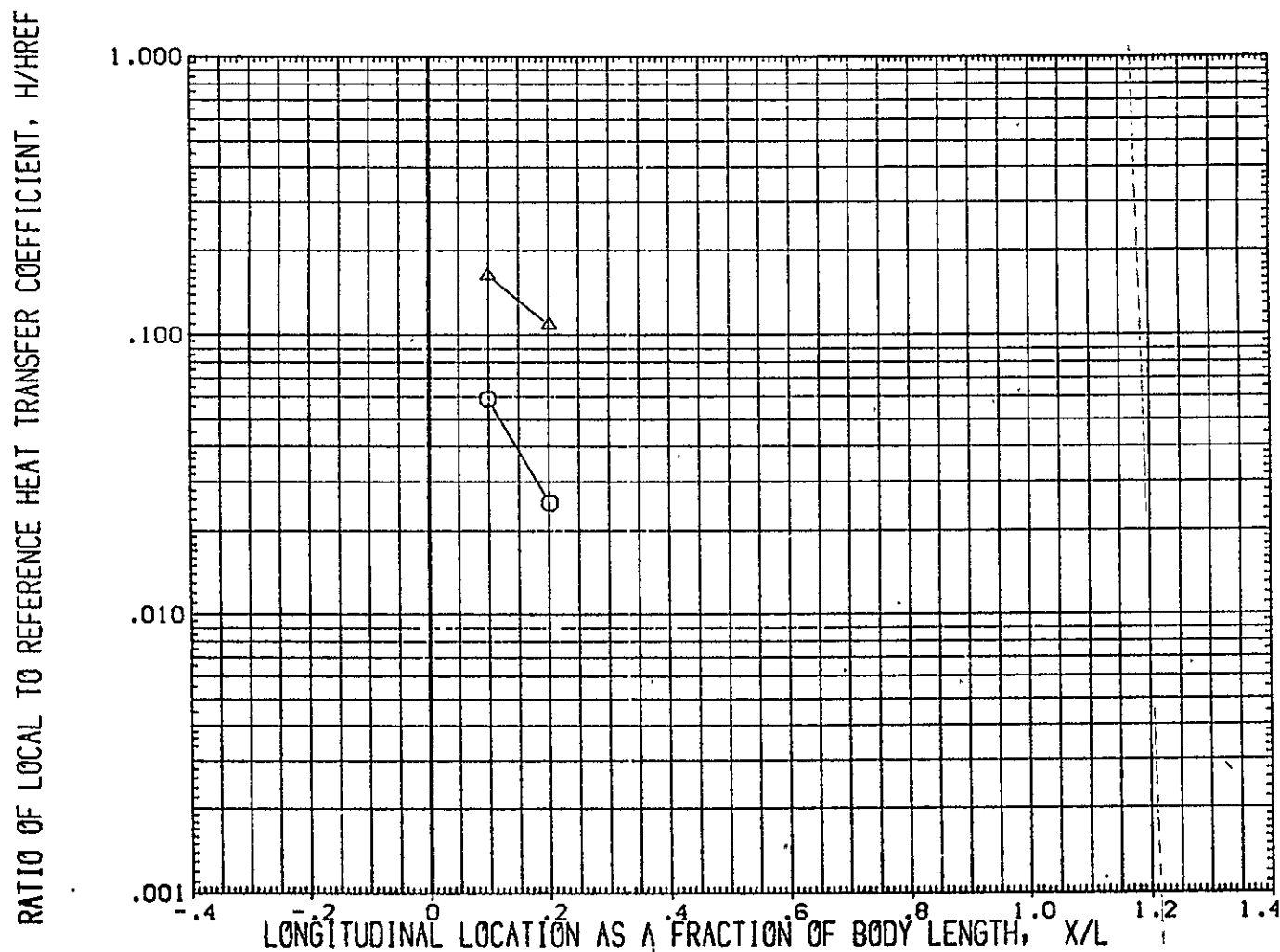


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 16.040 HAW/HT = .850 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	OH12/IH21 (CAL HST 173-100) 37 0	.000	.000
(RUGB08)	DATA NOT AVAILABLE	5.000	.000
(RUGB09)	DATA NOT AVAILABLE	10.000	.000
(RUGB10)	OH12/IH21 (CAL HST 173-100) 37 0	25.000	.000

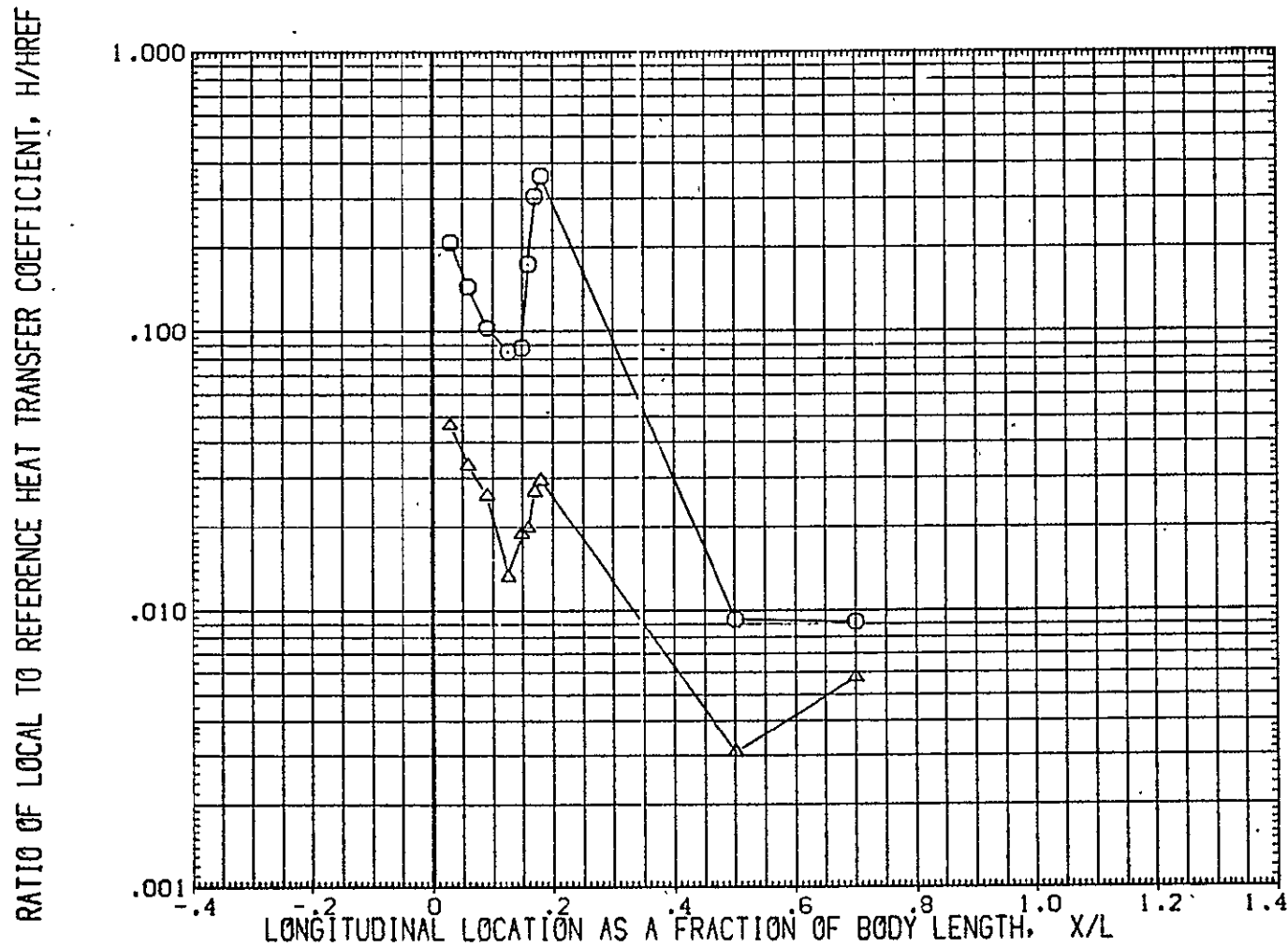


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER. $RN/L1$

MACH = 16.040 HAW/HT = .850 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	OH12/1H21 (CAL HST 173-100) 37 0	.000	.000
(RUGB08)	DATA NOT AVAILABLE	5.000	.000
(RUGB09)	DATA NOT AVAILABLE	10.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000

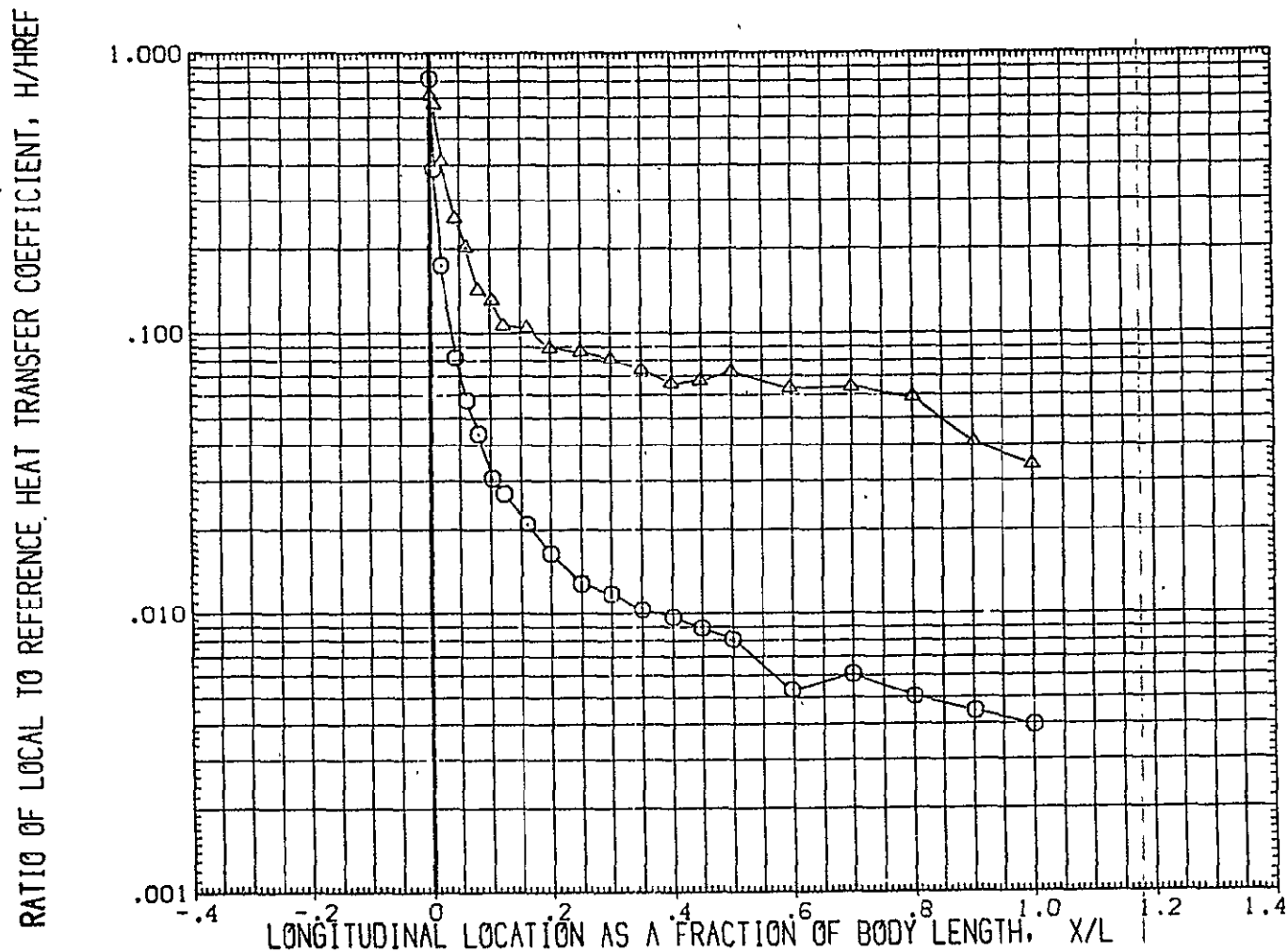


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER | $RN/L1$

MACH = 16.040 HAW/HT = .900 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	OH12/1H21 (CAL HST 173-100) 37 0	.000	.000
(RUG808)	DATA NOT AVAILABLE	5.000	.000
(RUG809)	DATA NOT AVAILABLE	10.000	.000
(RUG810)	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000

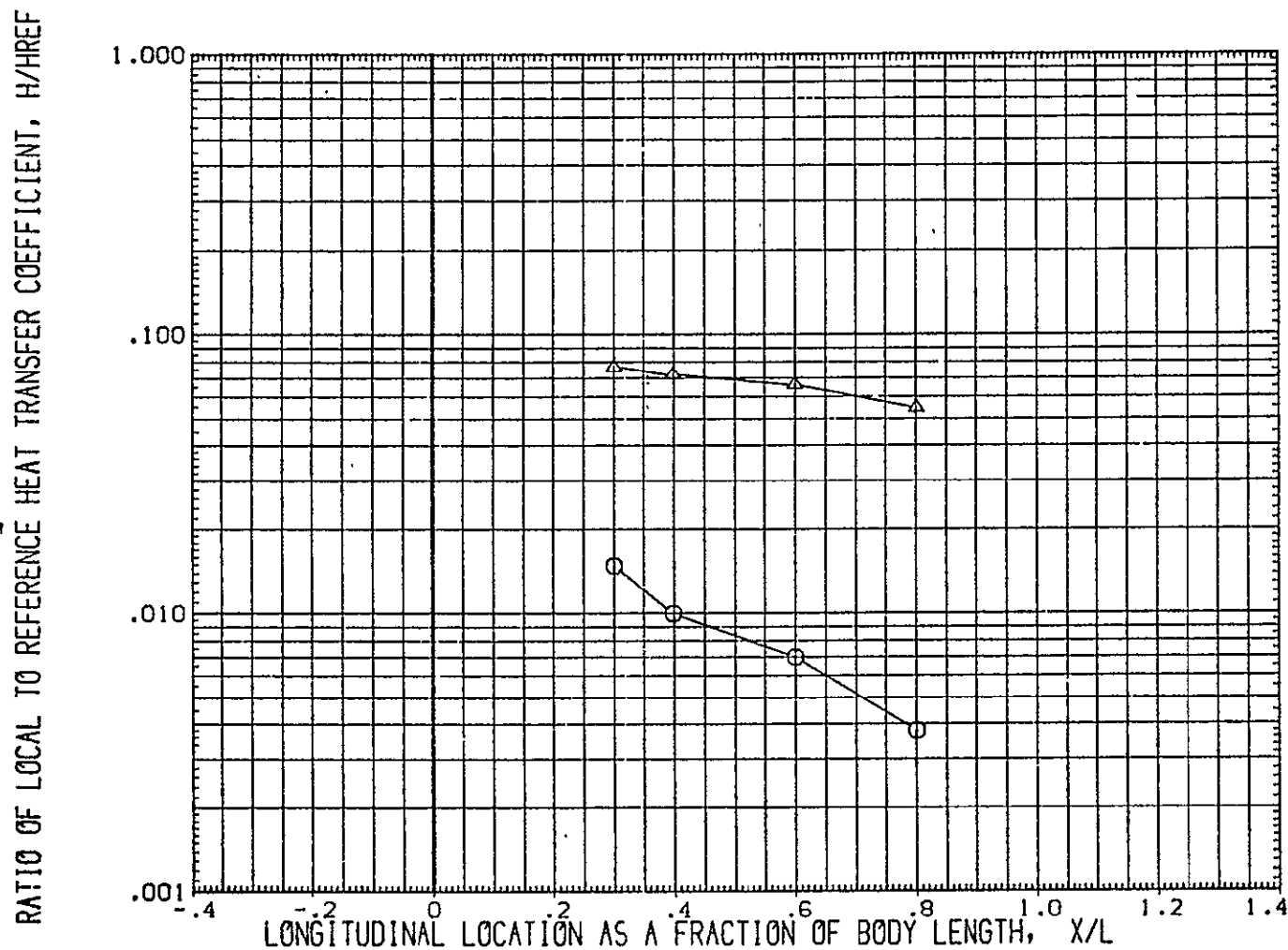


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 16.040 HAW/HT= .900 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000 .000
(RUG808)	DATA NOT AVAILABLE	5.000	.000
(RUG809)	DATA NOT AVAILABLE	10.000	.000
(RUG810)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	25.000 .000

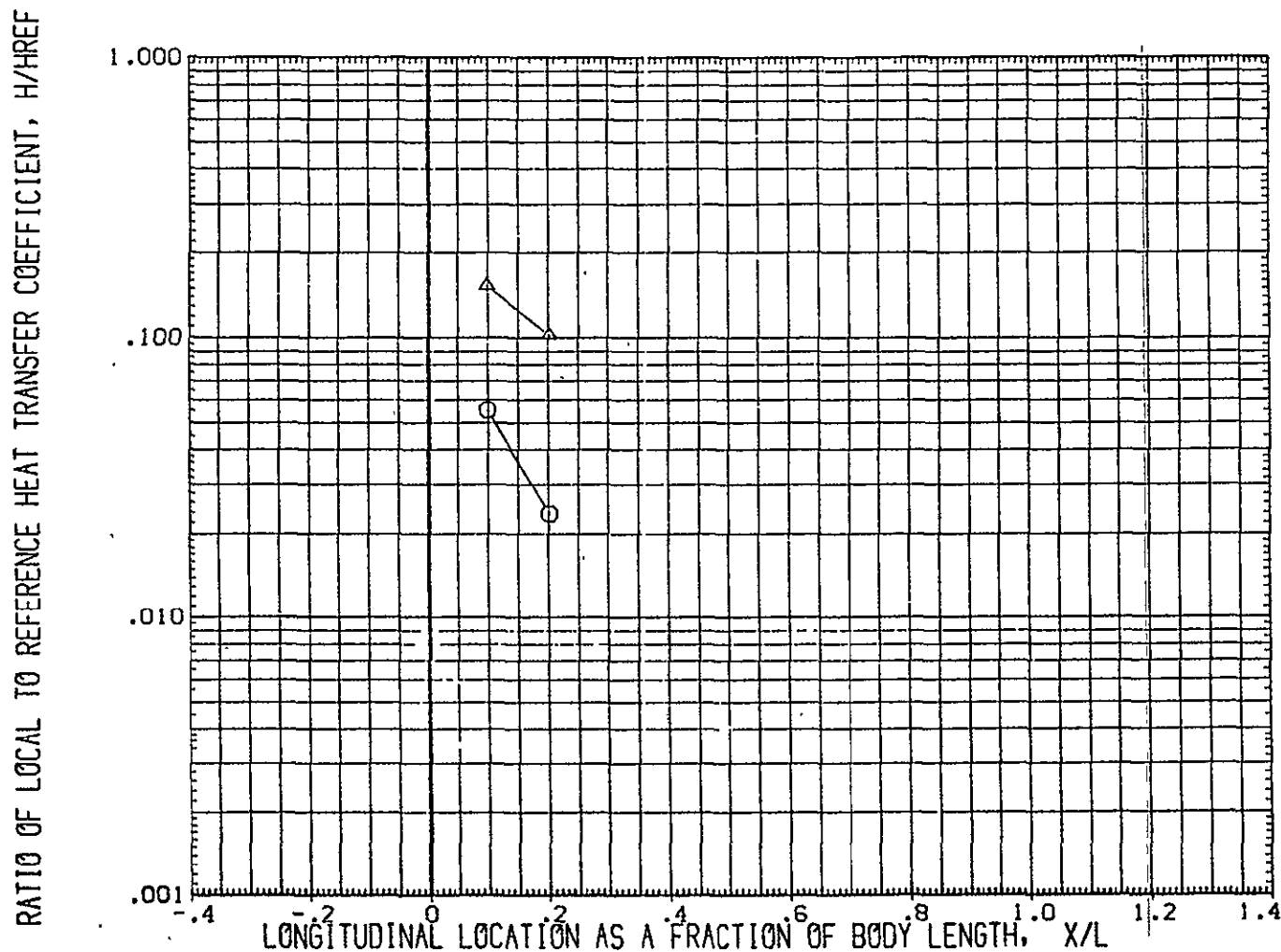


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER | RN/L1

MACH = 16.040 HAW/HT= .900 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	CHI2/1H21 (CAL HST 173-100) 37 0	.000	.000
(RUG808)	DATA NOT AVAILABLE	5.000	.000
(RUG809)	DATA NOT AVAILABLE	10.000	.000
(RUG810)	CHI2/1H21 (CAL HST 173-100) 37 0	25.000	.000

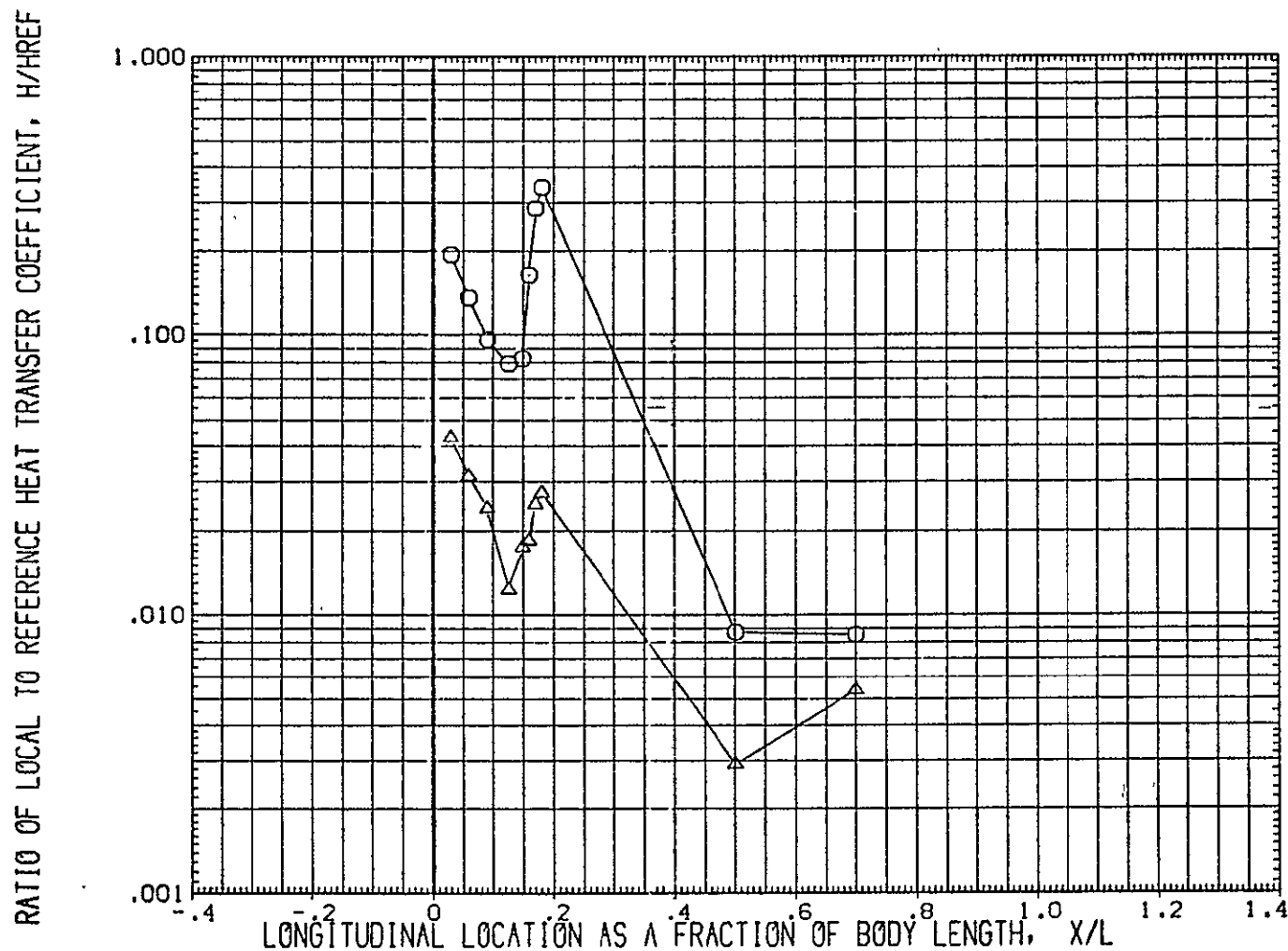


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 16.040 HAW/HT = .900 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGB07)	CH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
(RUGB08)	DATA NOT AVAILABLE	5.000	.000
(RUGB09)	DATA NOT AVAILABLE	10.000	.000
(RUGB10)	CH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000

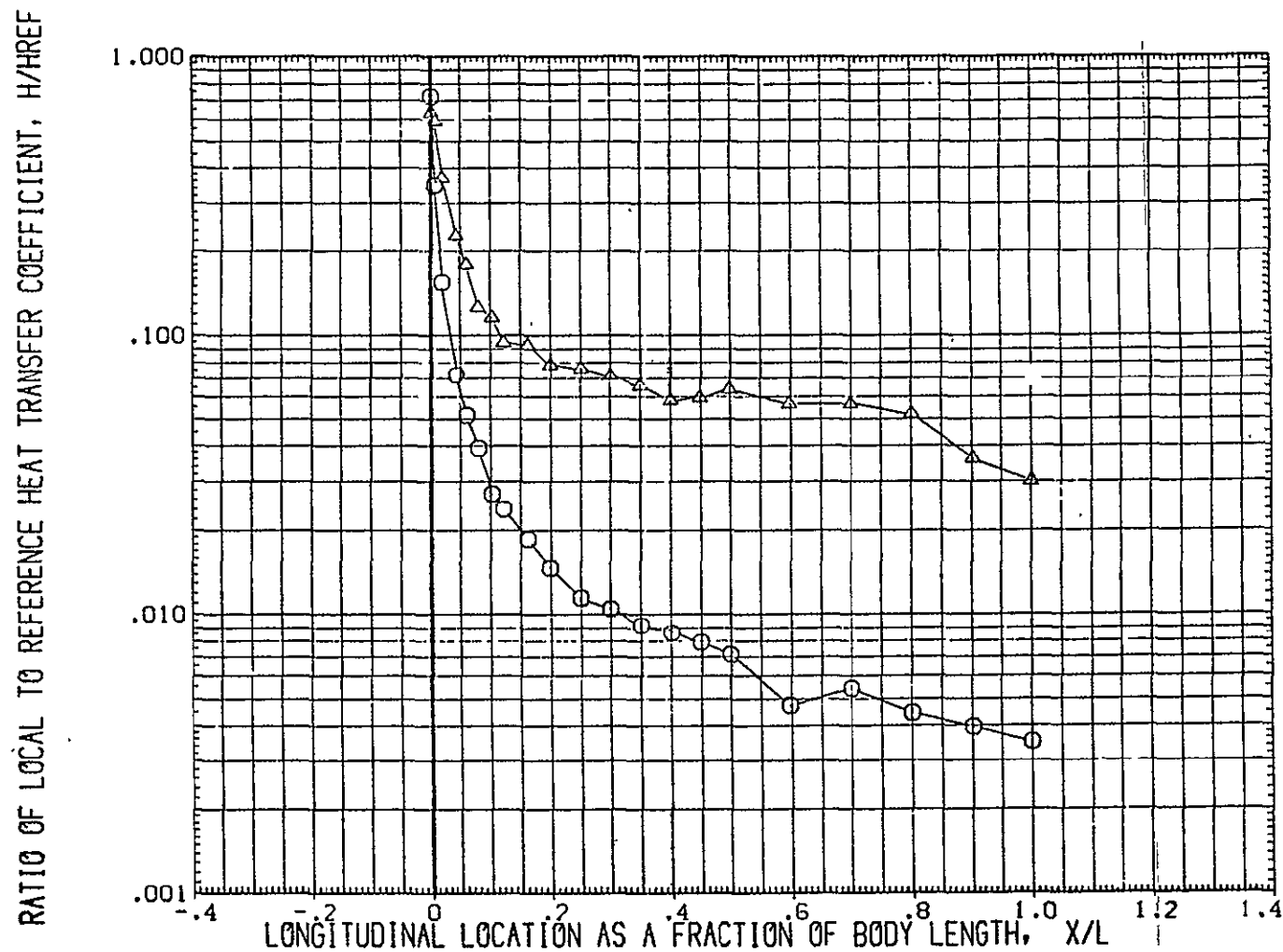


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER (RN/L1

MACH = 16.040 HAW/HT= 1.000 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUGB08)	DATA NOT AVAILABLE	5.000	.000
(RUGB09)	DATA NOT AVAILABLE	10.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	25.000

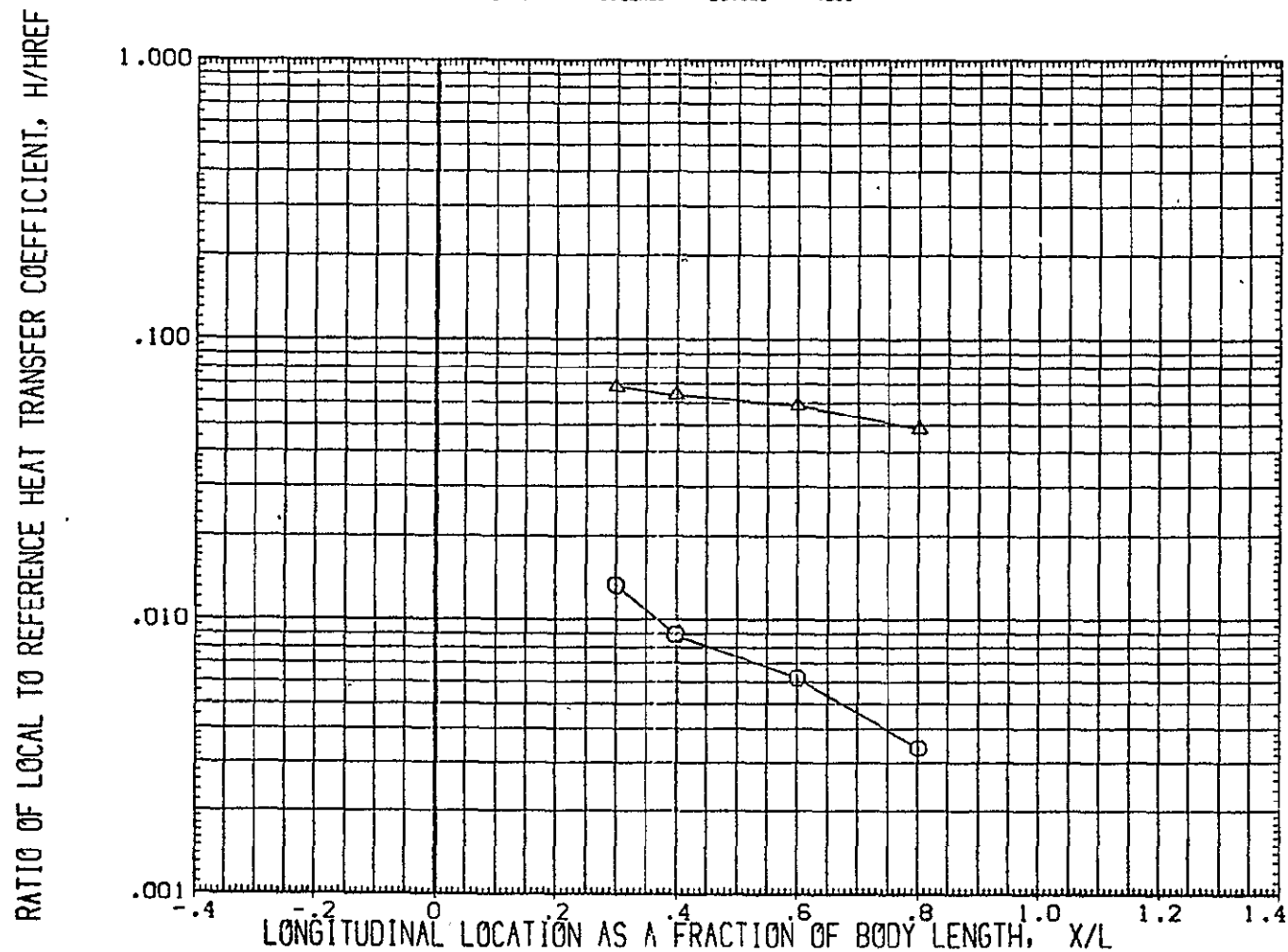


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/LI

MACH = 16.040 HAW/HT= 1.000 PHI = 25.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	BETA
(RUGB07)	OH12/1H21 (CAL HST 173-100)	37 0	FUSELACE	.000
(RUGB08)	DATA NOT AVAILABLE		5.000	.000
(RUGB09)	DATA NOT AVAILABLE		10.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100)	37 0	FUSELACE	25.000

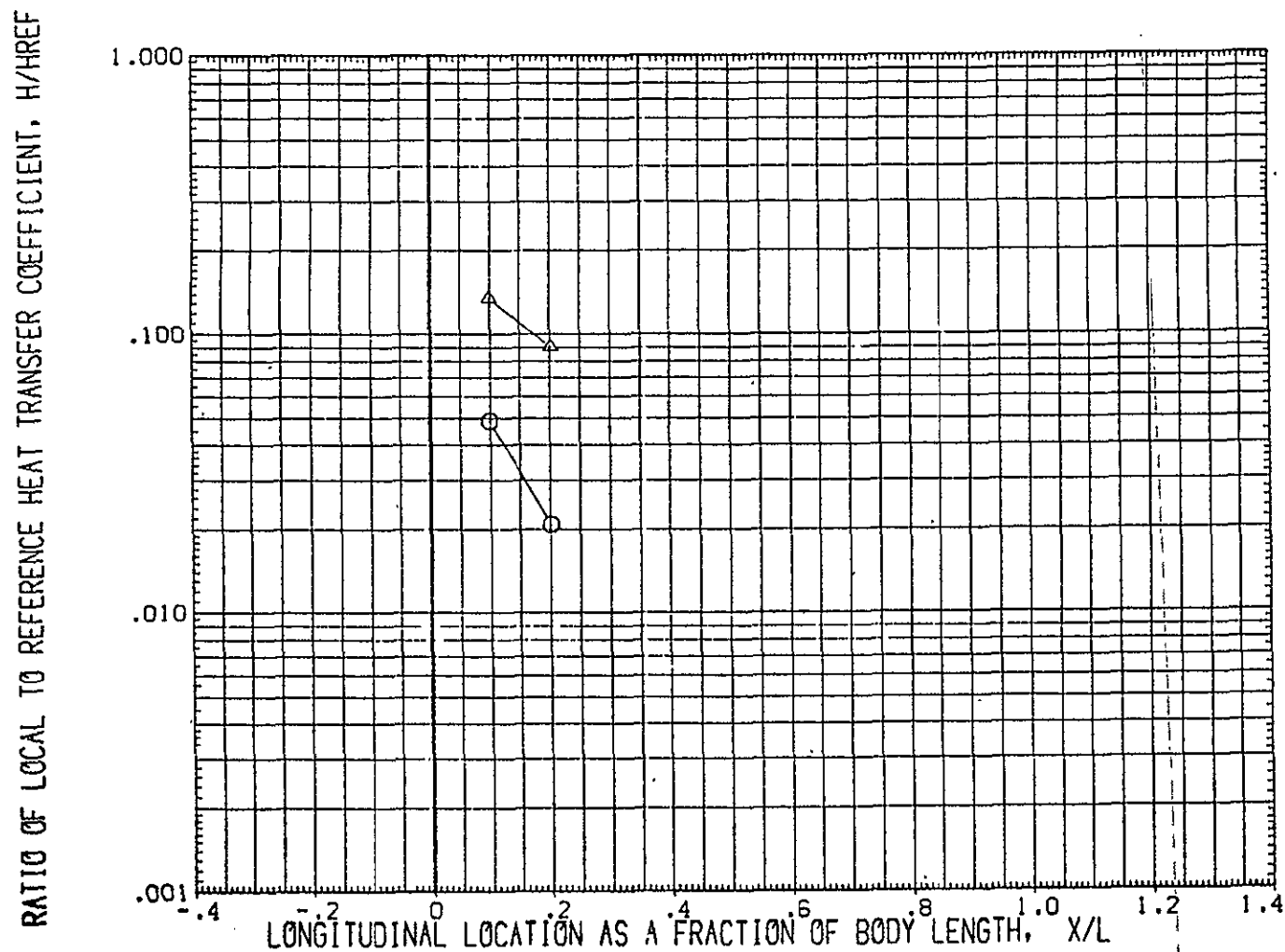


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 16.040 HAW/HT = 1.000 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELACE	.000
(RUGB08)	DATA NOT AVAILABLE	5.000	.000
(RUGB09)	DATA NOT AVAILABLE	10.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELACE	25.000

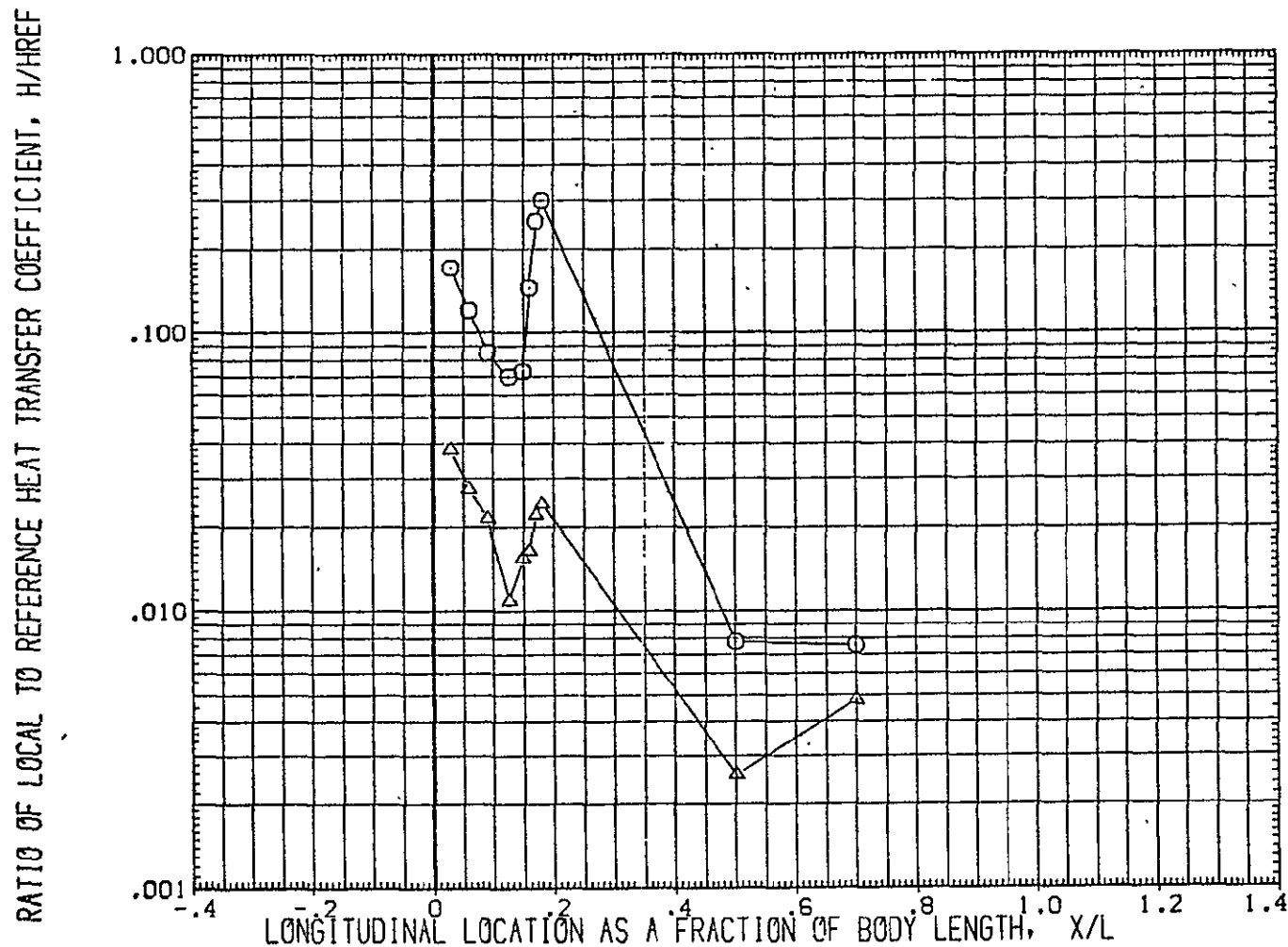


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L_1

MACH = 16.040 HAW/HT = 1.000 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .000	.000
(RUG808)	DATA NOT AVAILABLE	5.000	.000
(RUG809)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 10.000	.000
(RUG810)	DATA NOT AVAILABLE	25.000	.000

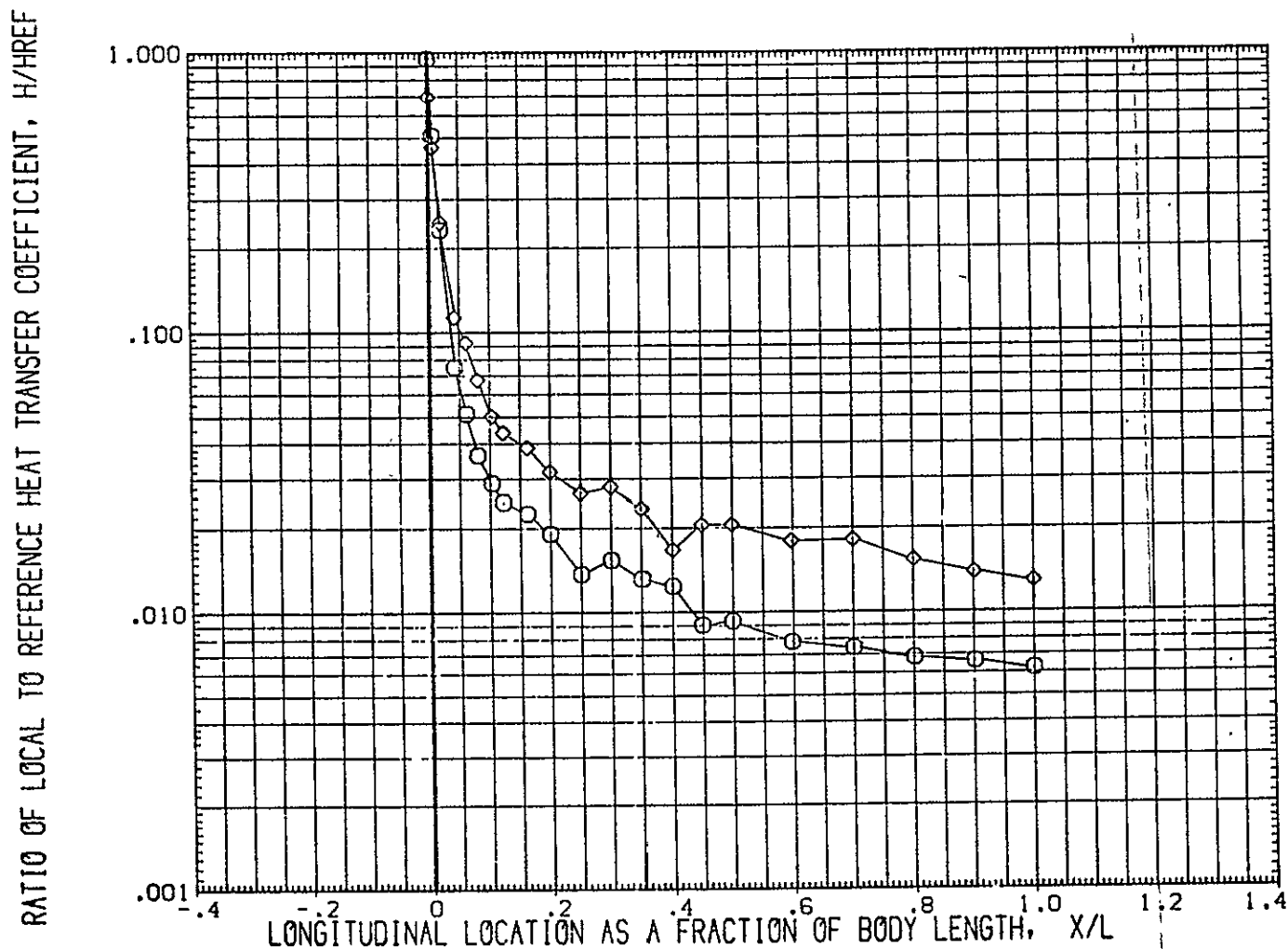


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = .850 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUG808)	DATA NOT AVAILABLE		.000
(RUG809)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	5.000
(RUG810)	DATA NOT AVAILABLE		.000
			10.000
			25.000

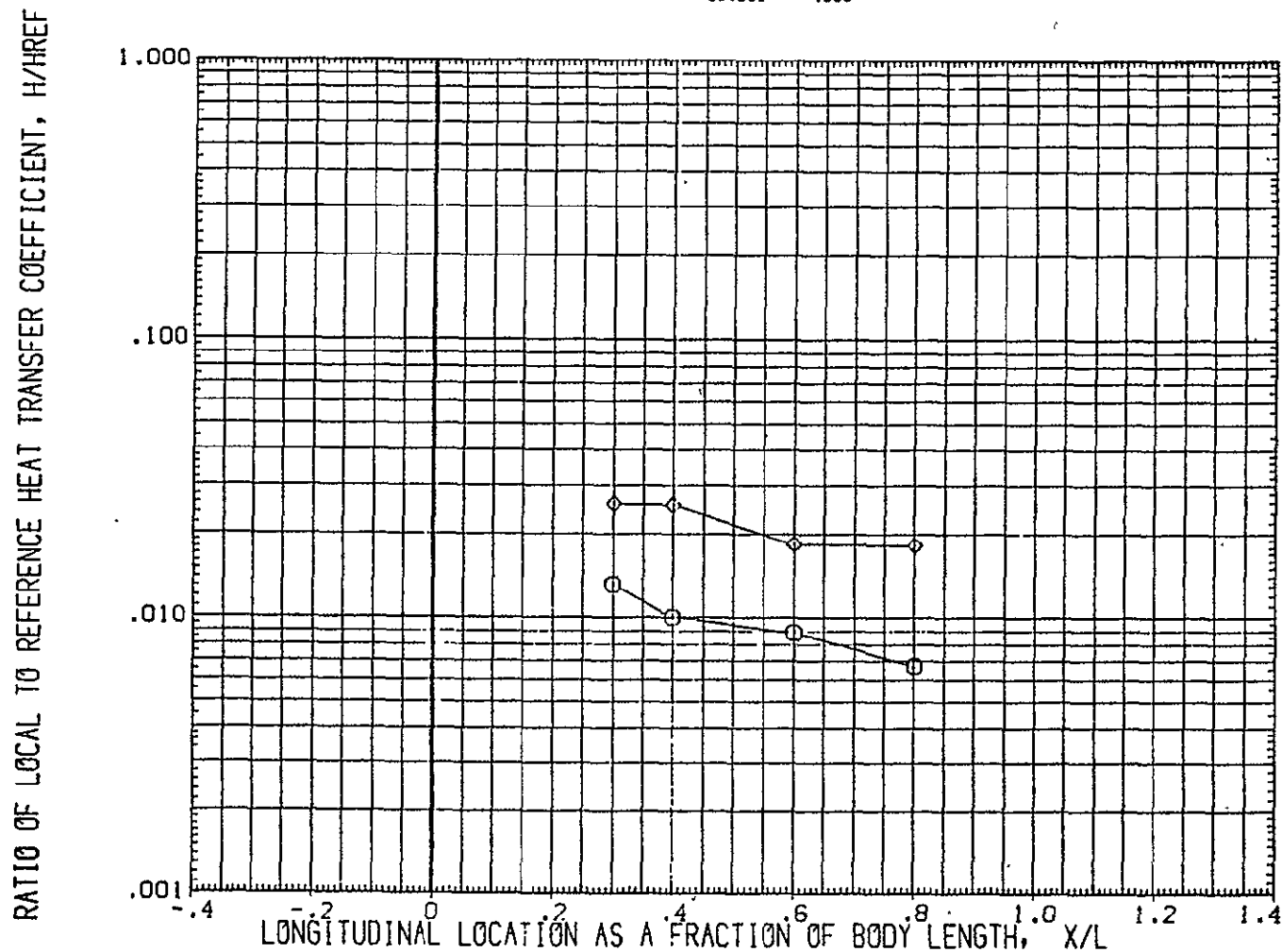


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L_1
MACH = 18.330 HAW/HT = .850 PHI = 25.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	CH12/IH21 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
(RUGB08)	DATA NOT AVAILABLE	5.000	.000
(RUGB09)	CH12/IH21 (CAL HST 173-100) 37 0 FUSELAGE	10.000	.000
(RUGB10)	DATA NOT AVAILABLE	25.000	.000

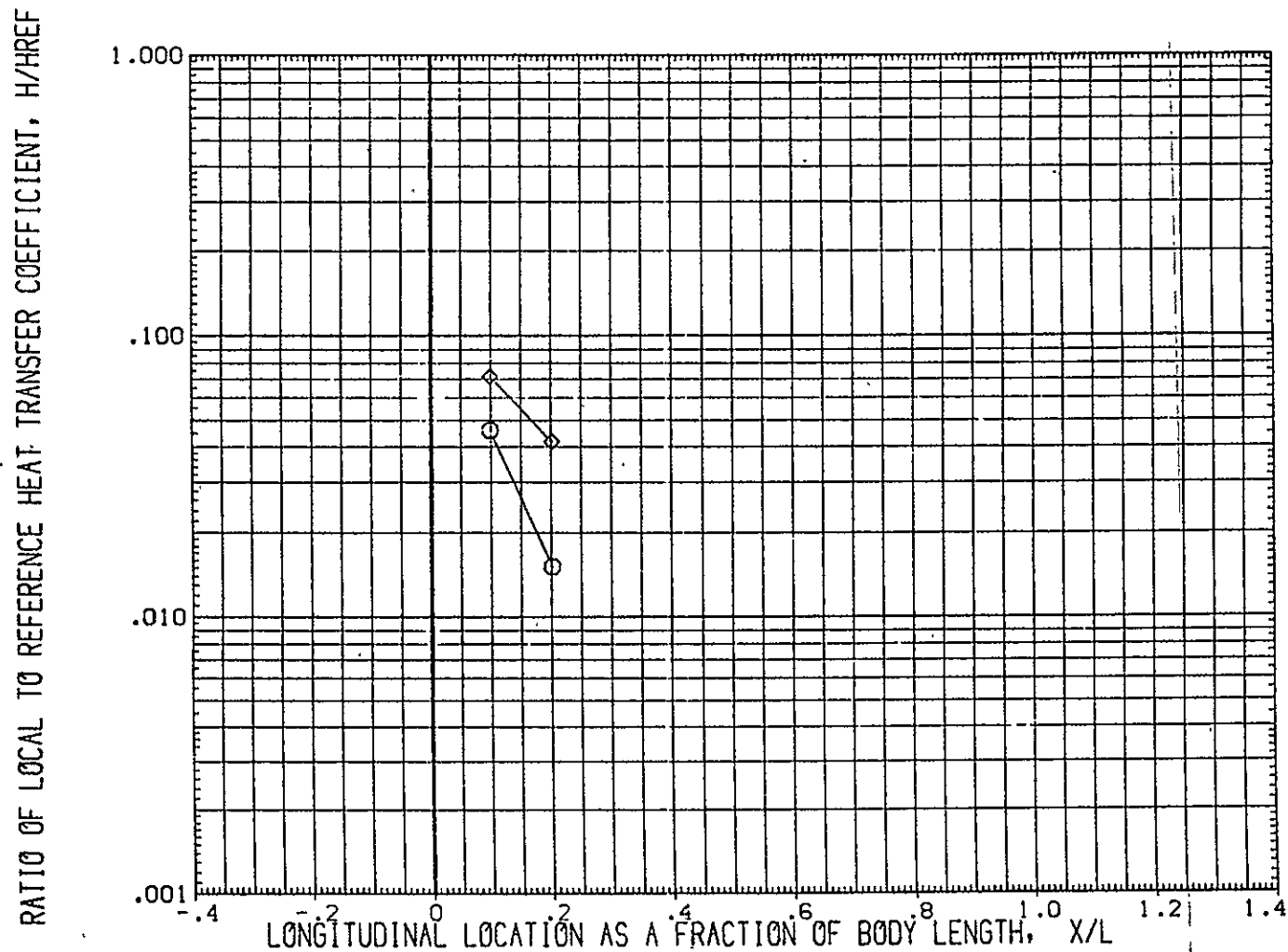


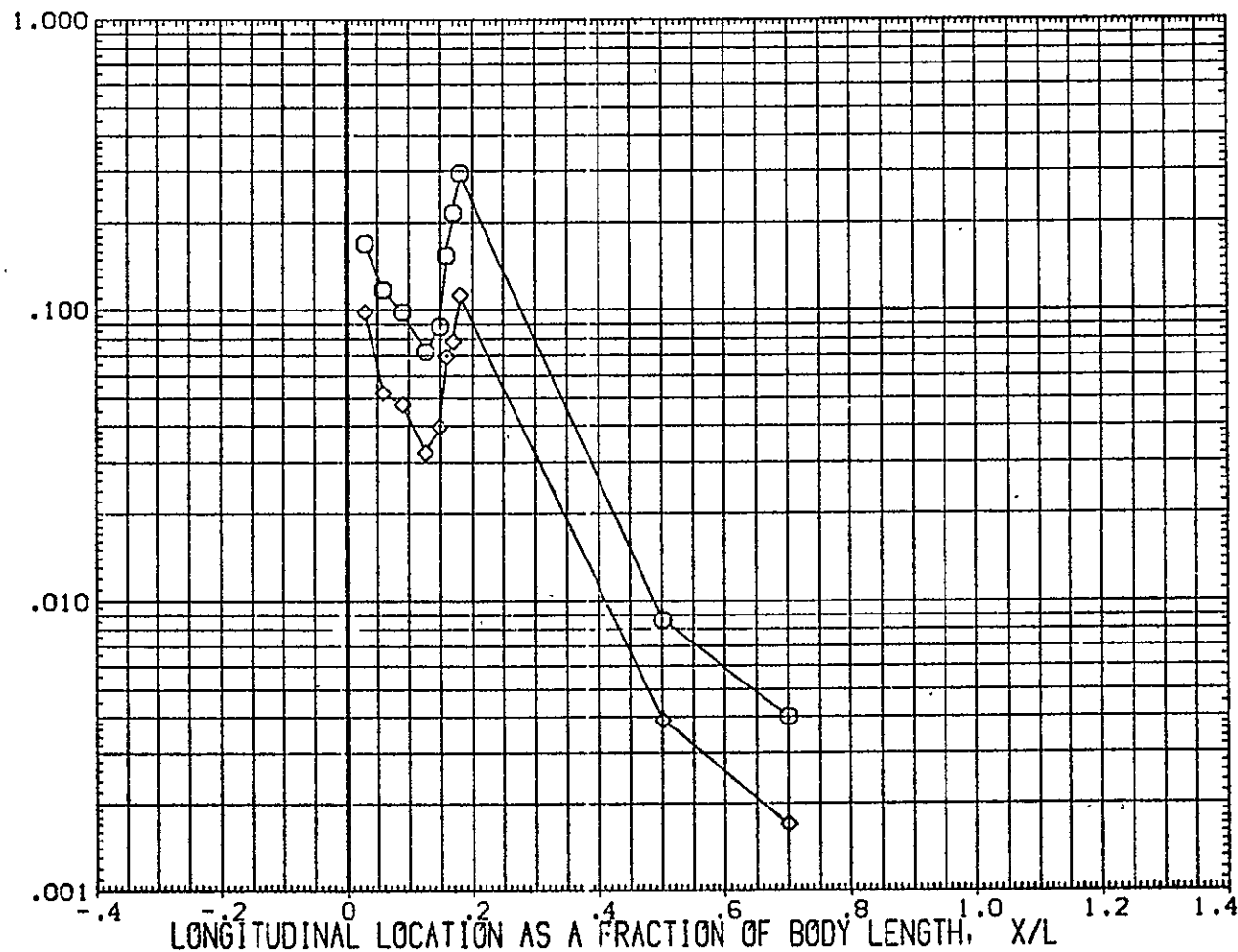
FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L_1

MACH = 18.330 HAW/HT = .850 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	CH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUGB08)	DATA NOT AVAILABLE		.000
(RUGB09)	CH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE	5.000
(RUGB10)	DATA NOT AVAILABLE		.000
		FUSELAGE	10.000
			25.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	0412/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
(RUG808)	DATA NOT AVAILABLE	5.000	.000
(RUG809)	0412/1H21 (CAL HST 173-100) 37 0 FUSELAGE	10.000	.000
(RUG810)	DATA NOT AVAILABLE	25.000	.000

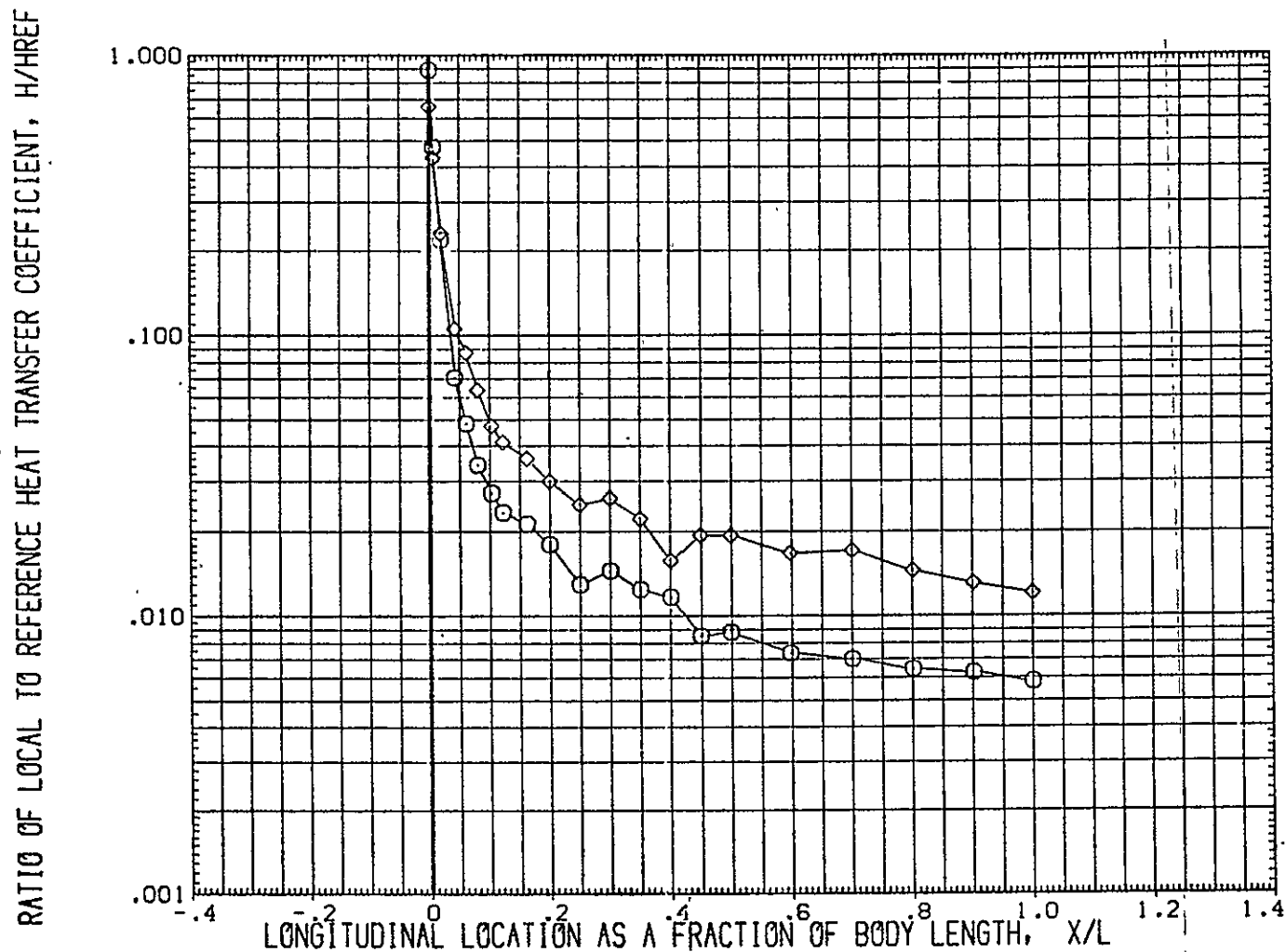


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = .900 PHI = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	○	OH12/1H21 (CAL MST 173-100) 37 0	FUSELAGE	.000
(RUGB08)	□	DATA NOT AVAILABLE		.000
(RUGB09)	◇	OH12/1H21 (CAL MST 173-100) 37 0	FUSELAGE	5.000
(RUGB10)	△	DATA NOT AVAILABLE		10.000
				25.000

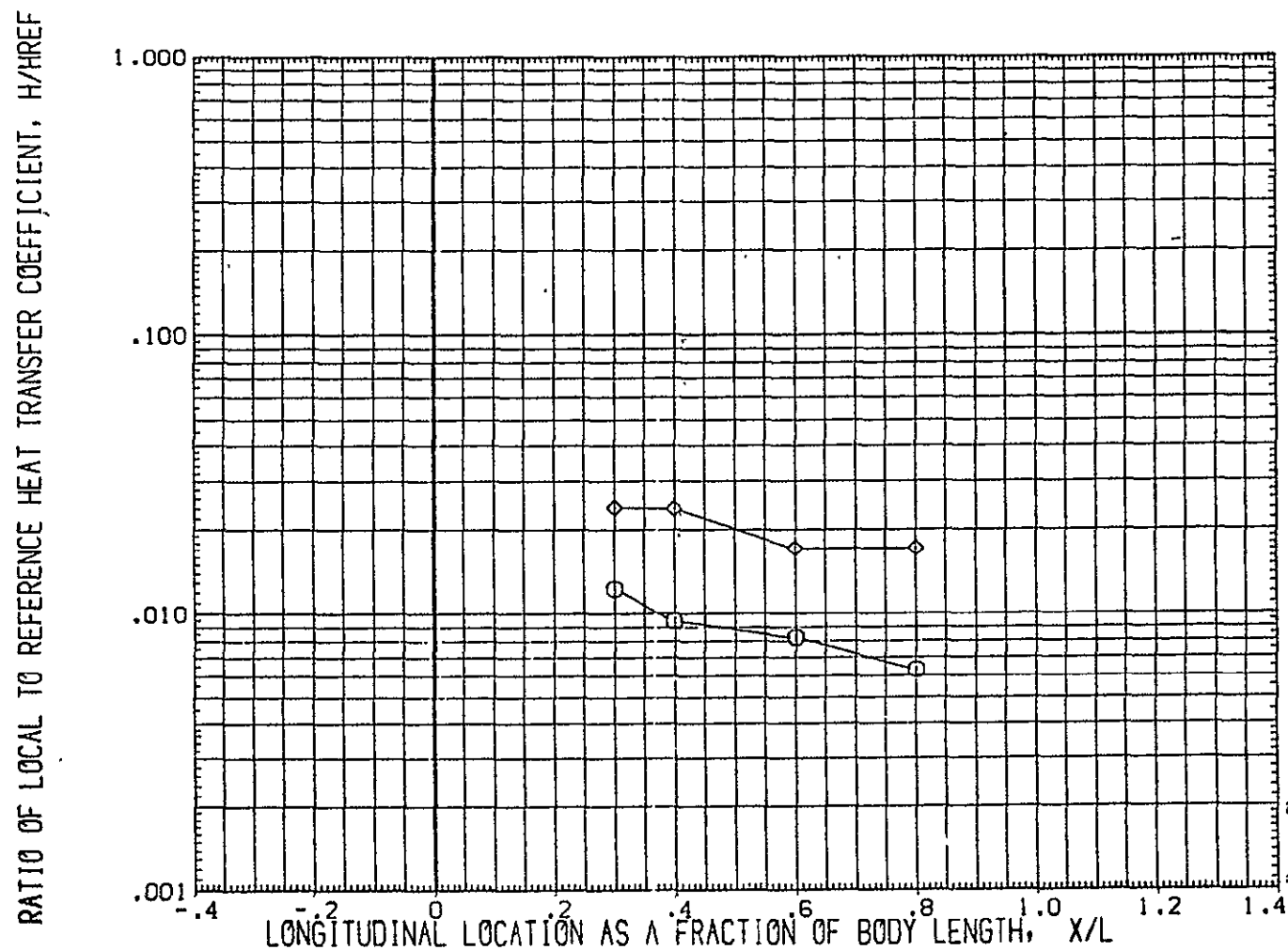


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = .900 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	CH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
(RUGB08)	DATA NOT AVAILABLE	5.000	.000
(RUGB09)	CH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	10.000	.000
(RUGB10)	DATA NOT AVAILABLE	25.000	.000

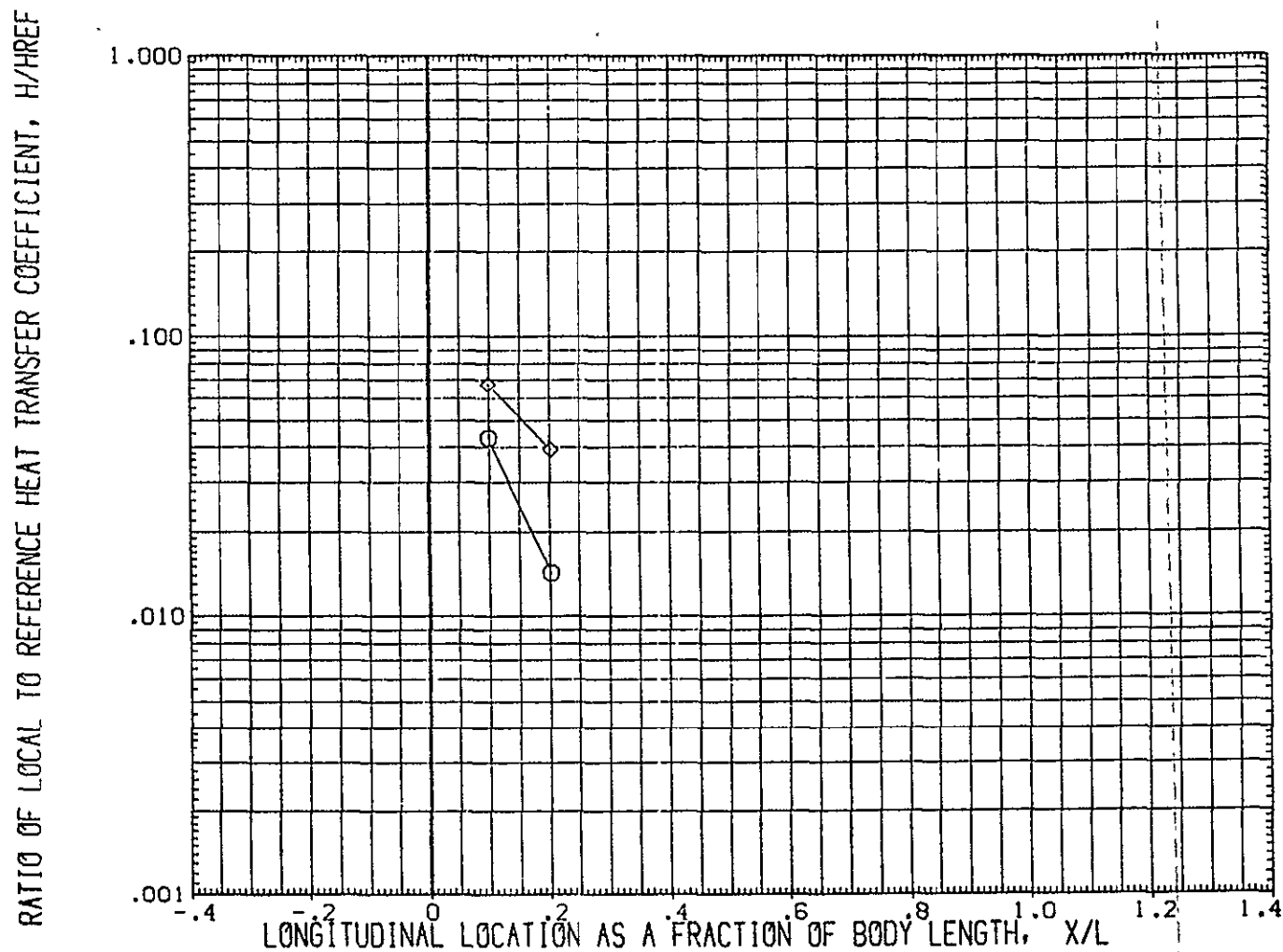


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 18.330 HAW/HT= .900 PHI = 30.000 PAGE 418

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUC607)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
(RUC608)	DATA NOT AVAILABLE	5.000	.020
(RUC609)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	10.000	.000
(RUC610)	DATA NOT AVAILABLE	25.000	.000

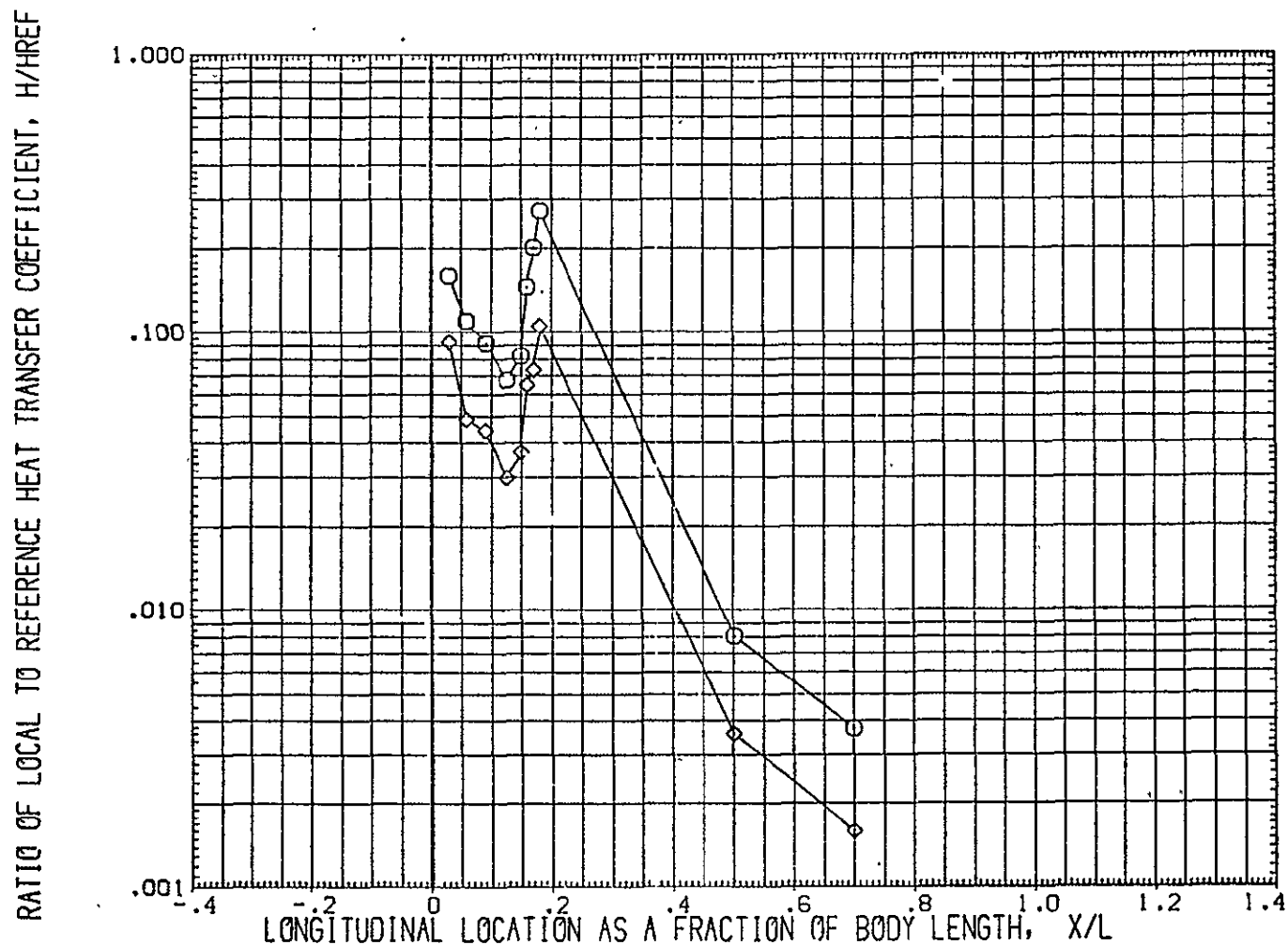


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = .900 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG907)	GM12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
(RUG908)	DATA NOT AVAILABLE	5.300	.000
(RUG909)	GM12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.630	.000
(RUG910)	DATA NOT AVAILABLE	25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

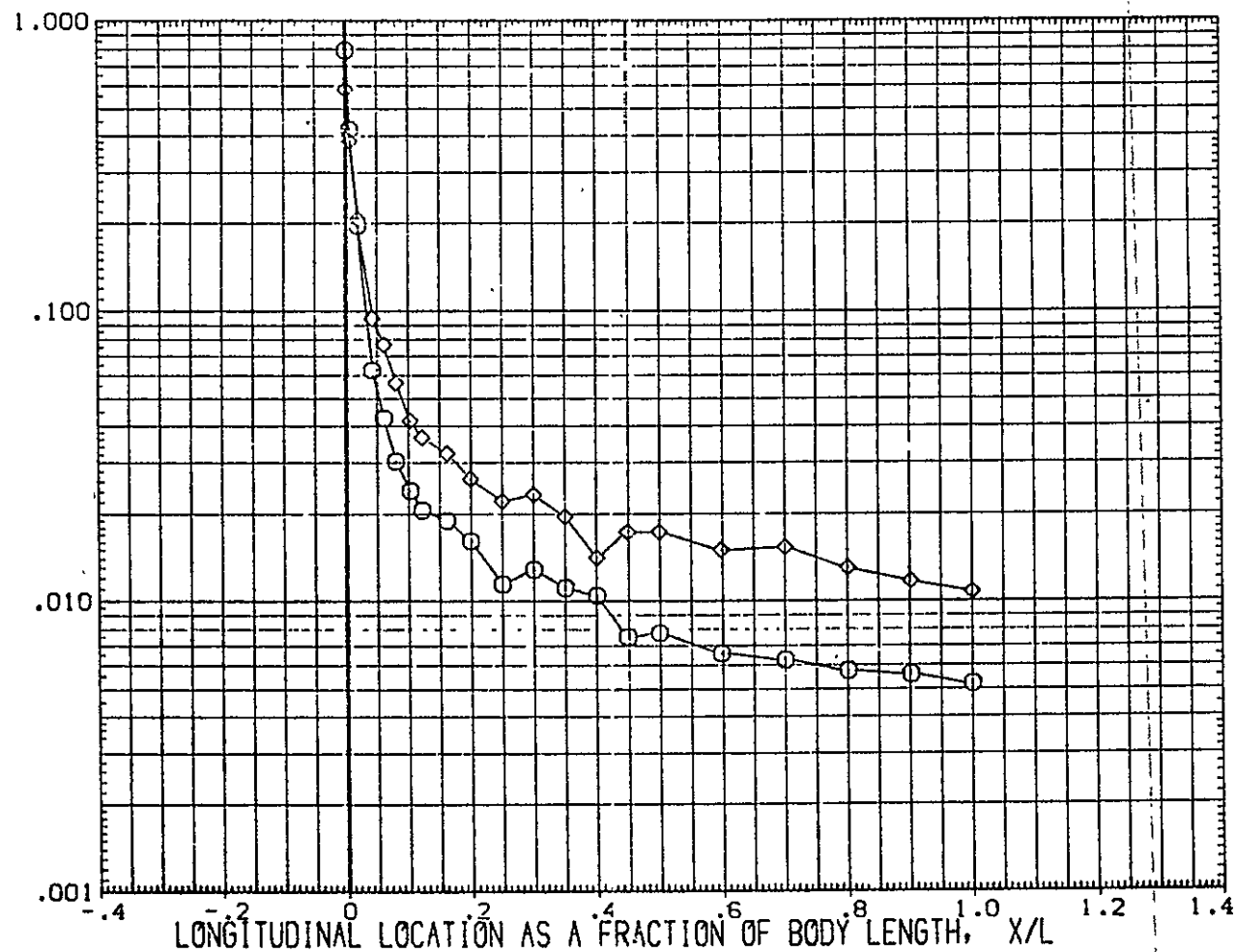


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT= 1.000 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	0412/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUGB08)	DATA NOT AVAILABLE		5.000
(RUGB09)	0412/1H21 (CAL HST 173-100) 37 0	FUSELAGE	10.000
(RUGB10)	DATA NOT AVAILABLE		25.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

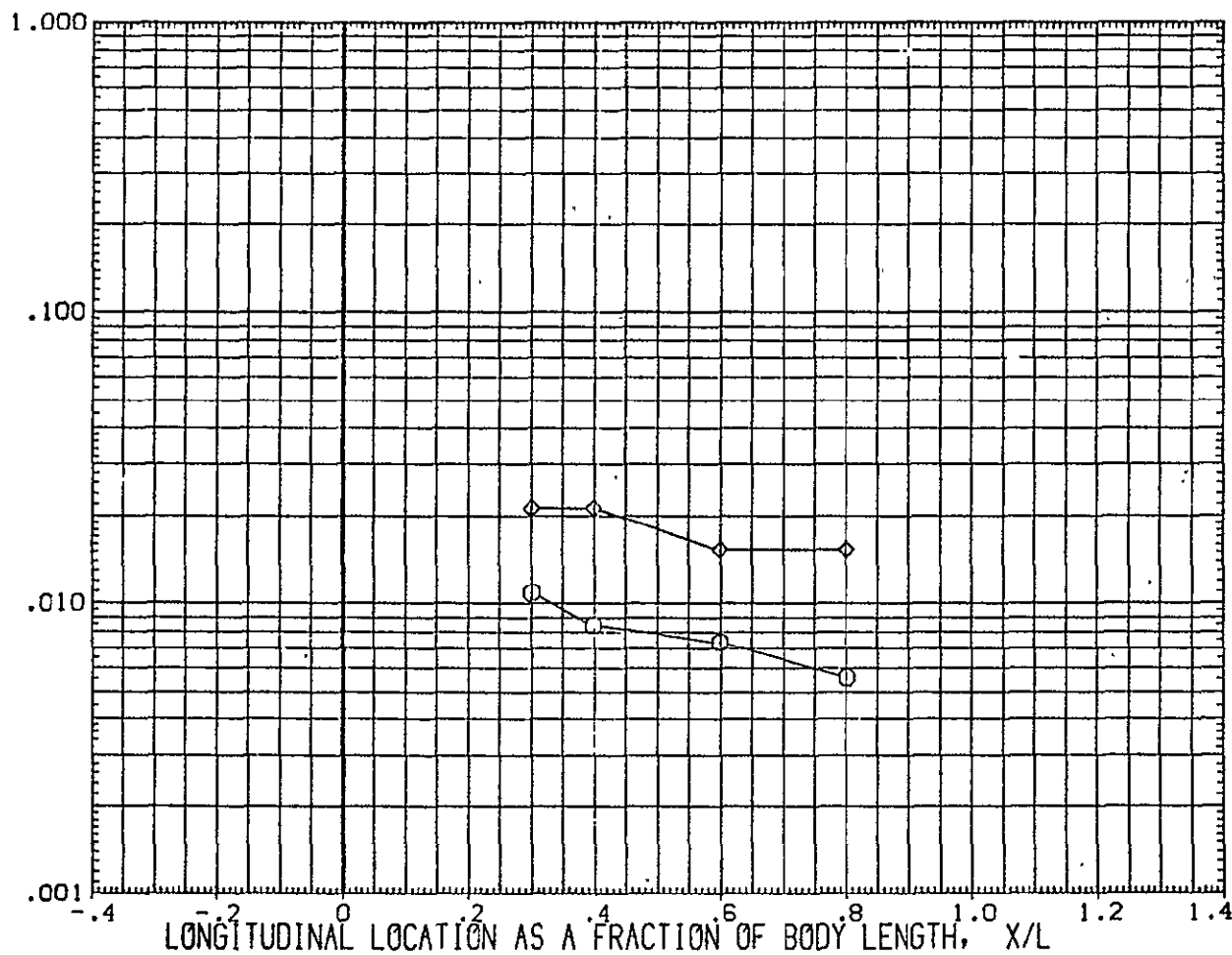


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT= 1.000 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	CH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
(RUGB08)	DATA NOT AVAILABLE	5.000	.000
(RUGB09)	CH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	10.000	.000
(RUGB10)	DATA NOT AVAILABLE	25.000	.000

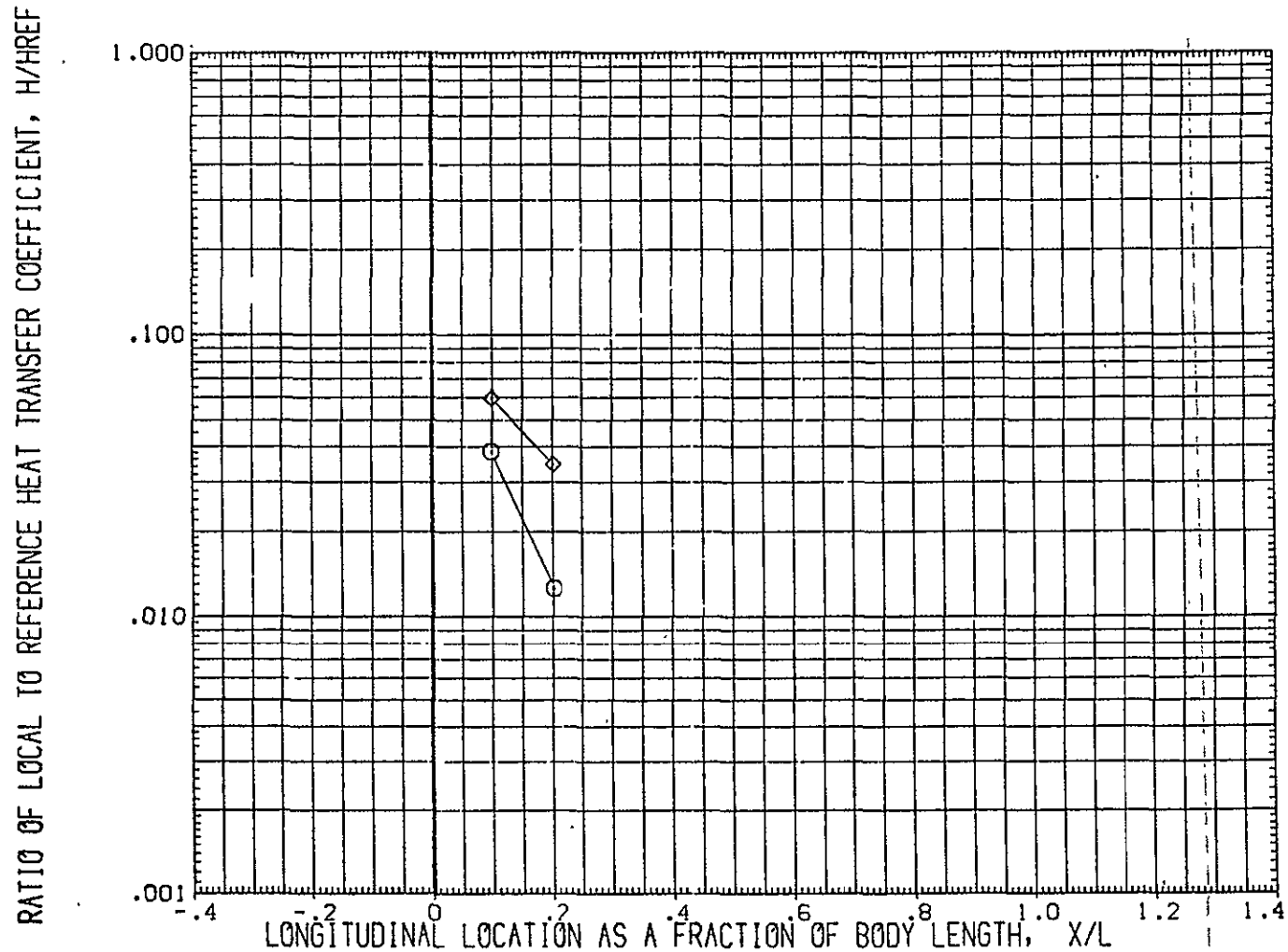


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = 1.000 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE .000	.000
(RUGB08)	DATA NOT AVAILABLE	5.000	.000
(RUGB09)	OH12/IH21 (CAL HST 173-100) 37 0	10.000	.000
(RUGB10)	DATA NOT AVAILABLE	25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

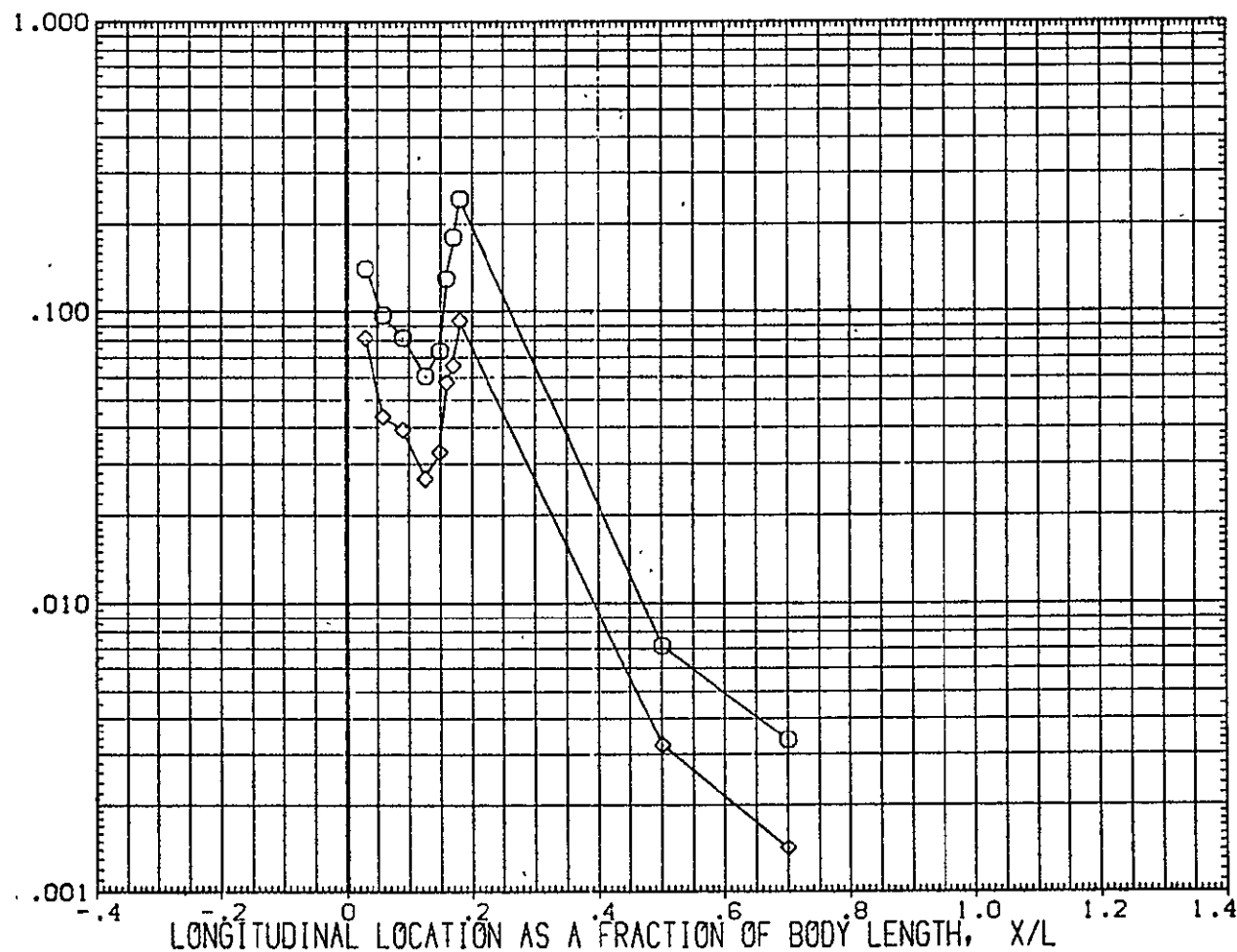


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT= 1.000 PHI = 180.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	○	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUG808)	□	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	5.000
(RUG809)	◇	DATA NOT AVAILABLE	10.000	.000
(RUG810)	△	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	25.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

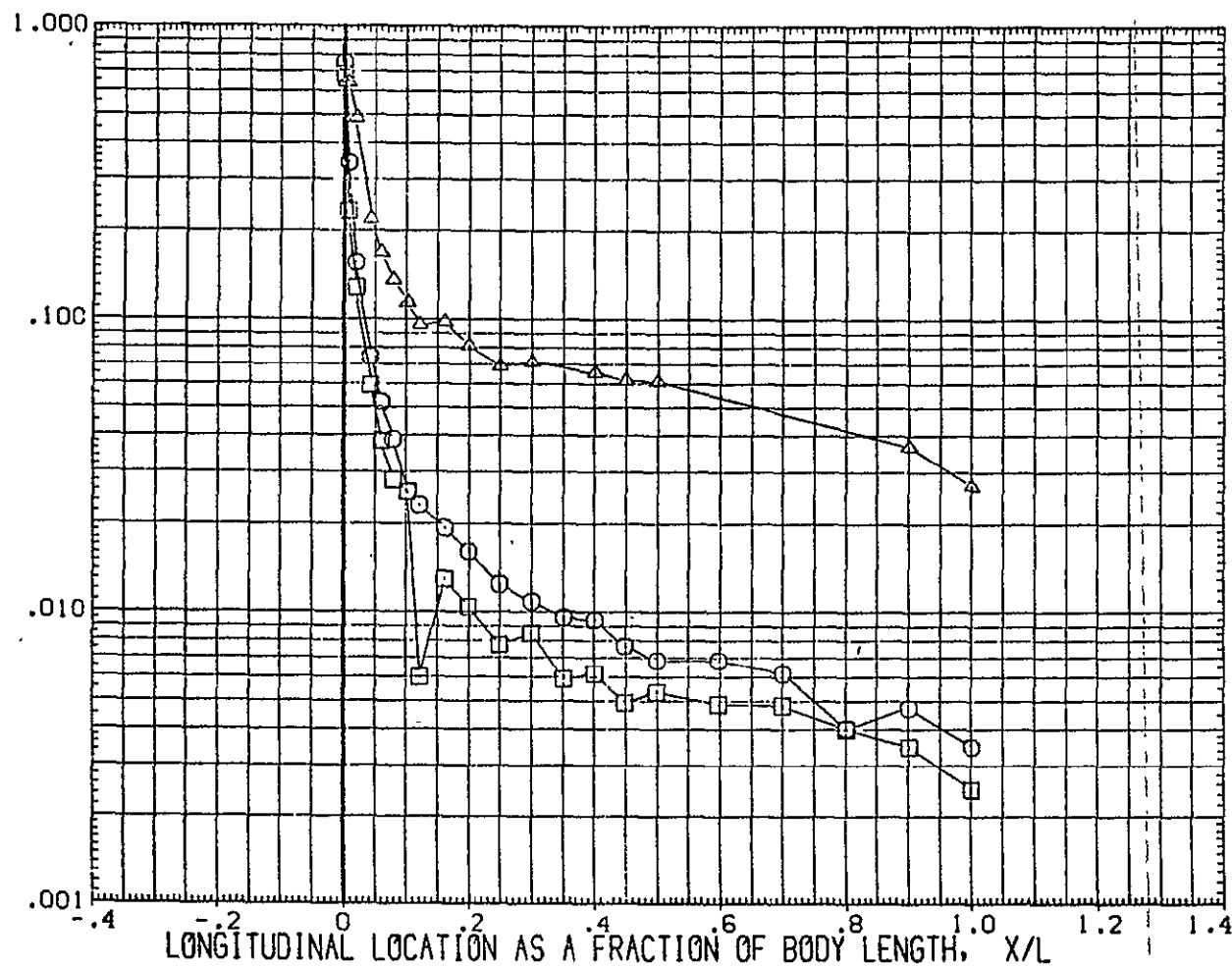


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = .850 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .000	.000
(RUG808)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 5.000	.000
(RUG809)	DATA NOT AVAILABLE	10.000	.000
(RUG810)	DATA NOT AVAILABLE	25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

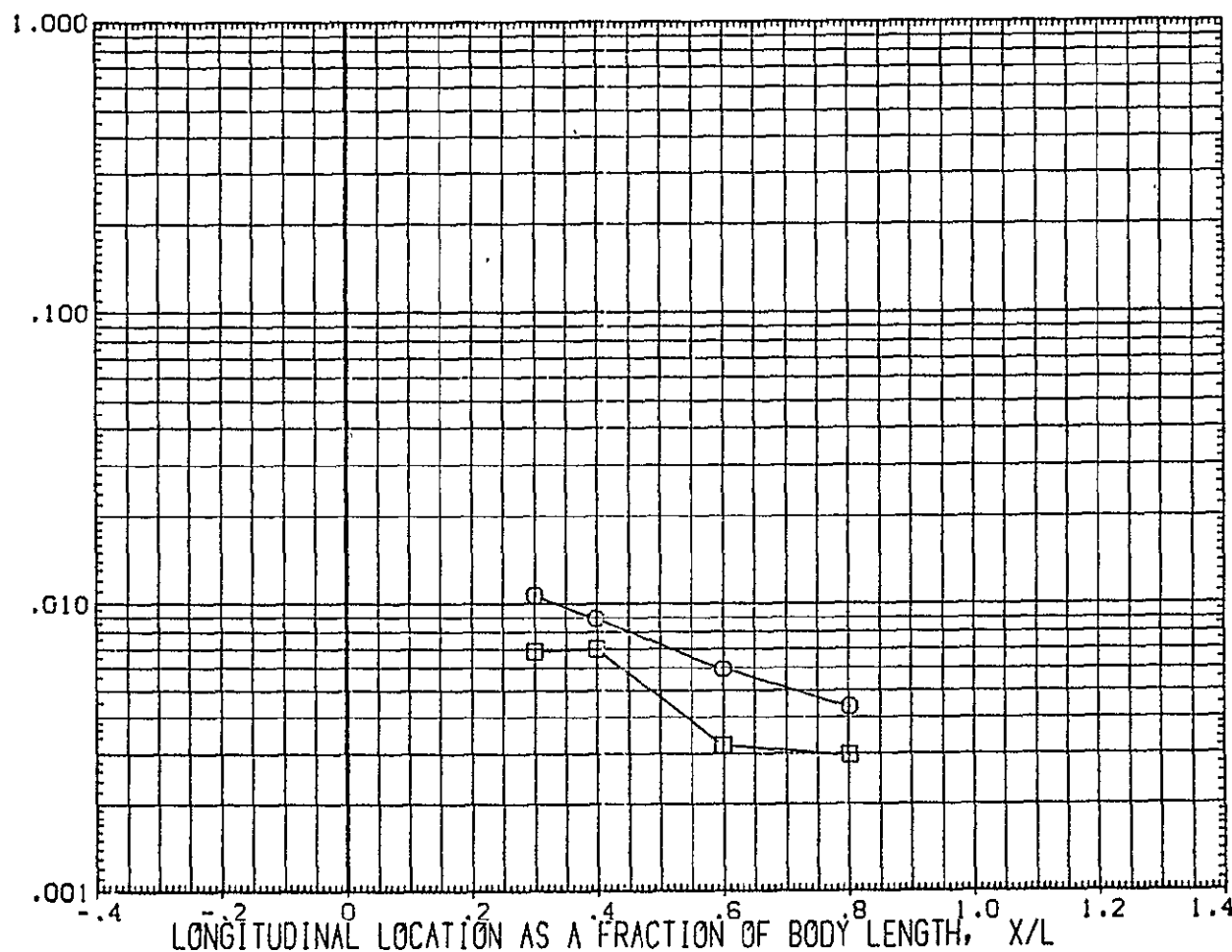


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = .850 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE .000	.000
(RUG808)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE 5.000	.000
(RUG809)	DATA NOT AVAILABLE	10.000	.000
(RUG810)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

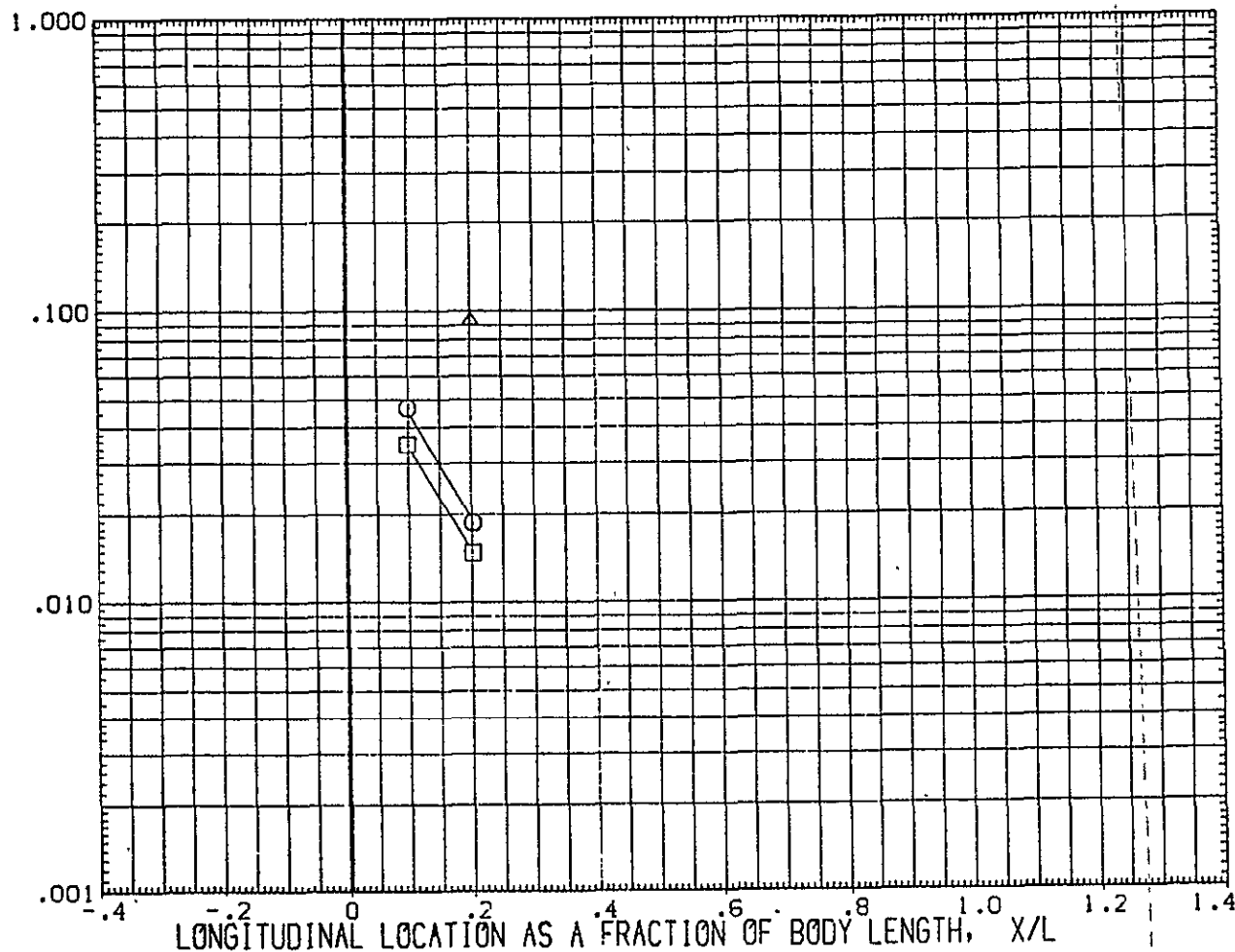


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = .850 PHI = 30.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	0412/1421 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUG808)	0412/1421 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUG809)	DATA NOT AVAILABLE	10.000	.000
(RUG810)	0412/1421 (CAL HST 173-100) 37 0	FUSELAGE	25.000

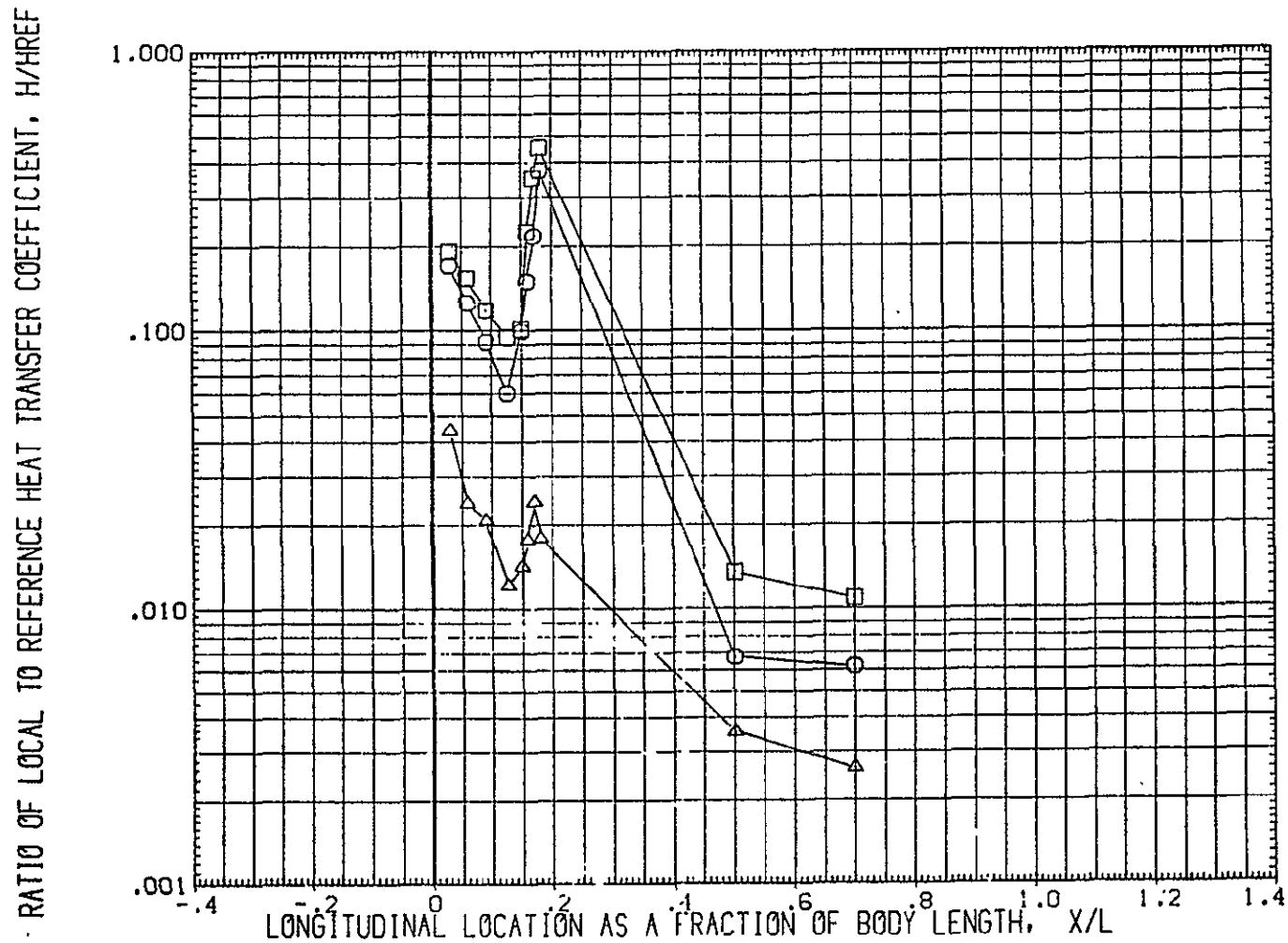


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = .850 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	CH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
(RUGB08)	CH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	5.000	.000
(RUGB09)	DATA NOT AVAILABLE	10.000	.000
(RUGB10)	CH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

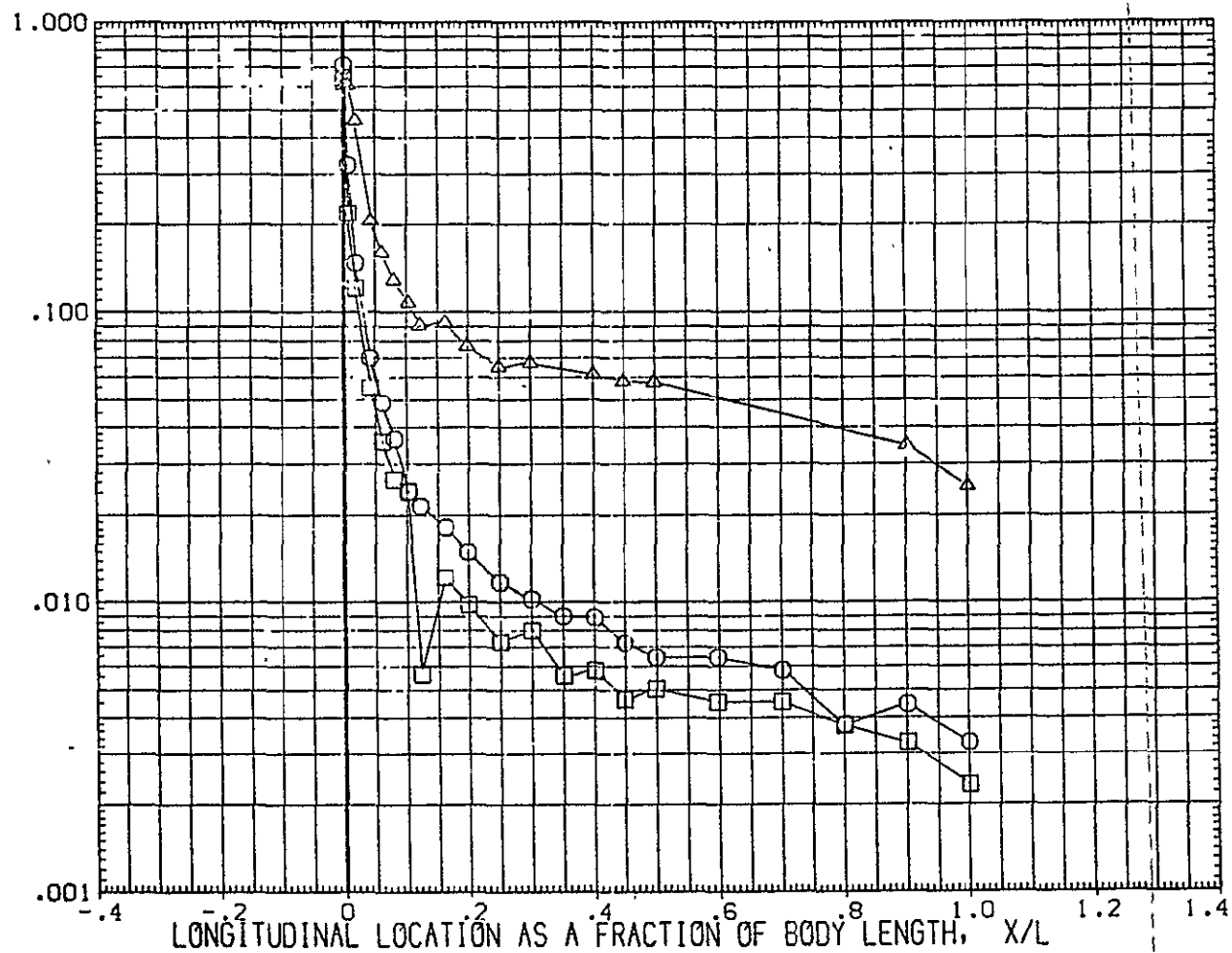


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = .900 PHI = .000

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	○	OH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
(RUG808)	□	OH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	5.000	.000
(RUG809)	×	DATA NOT AVAILABLE	10.000	.000
(RUG810)	△	DATA NOT AVAILABLE	25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

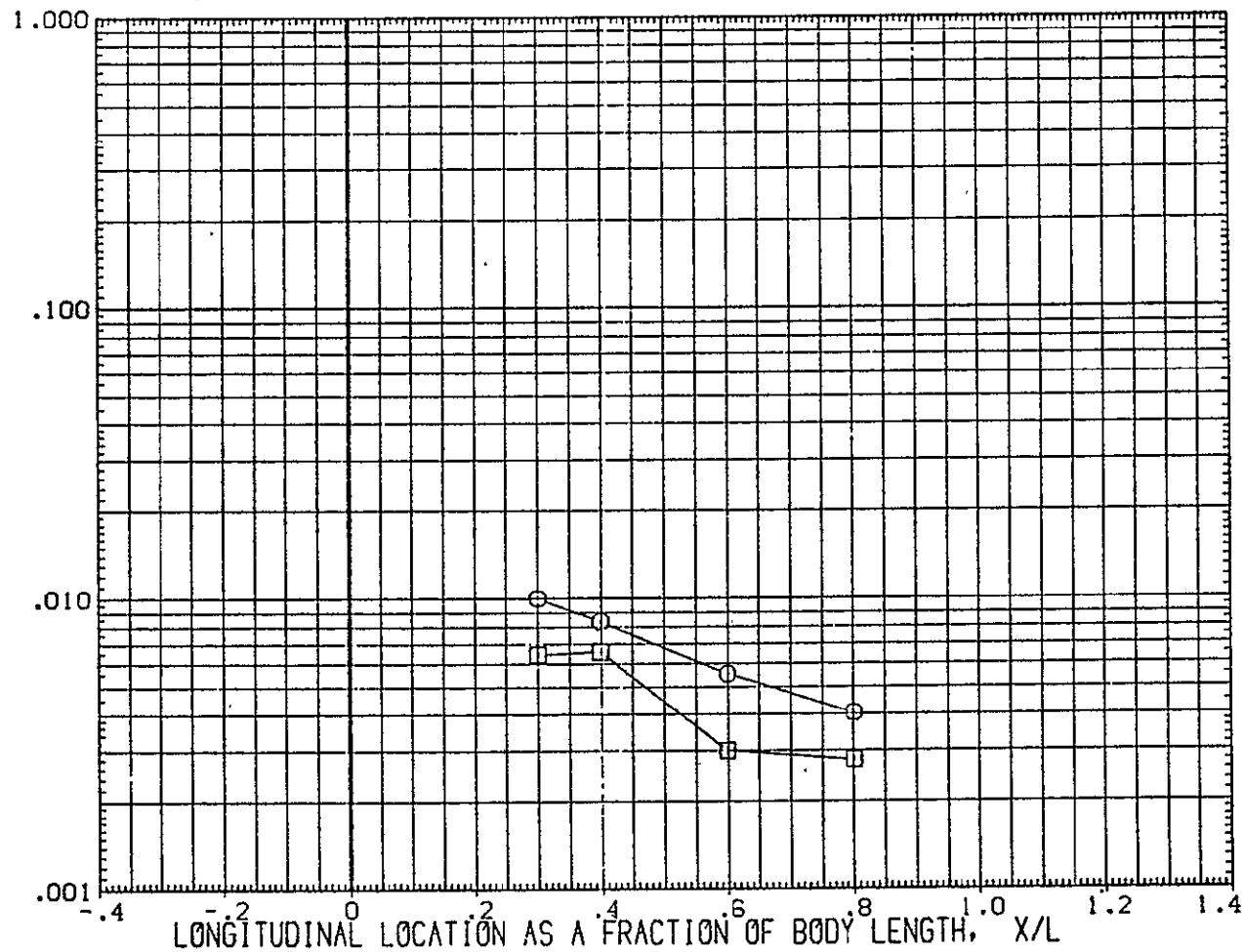


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = .900 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	OH12/H21 (CAL HST 173-100) 37 0	FUSELAGE .000	.000
(RUG808)	OH12/H21 (CAL HST 173-100) 37 0	FUSELAGE 5.000	.000
(RUG809)	DATA NOT AVAILABLE	10.000	.000
(RUG810)	OH12/H21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000

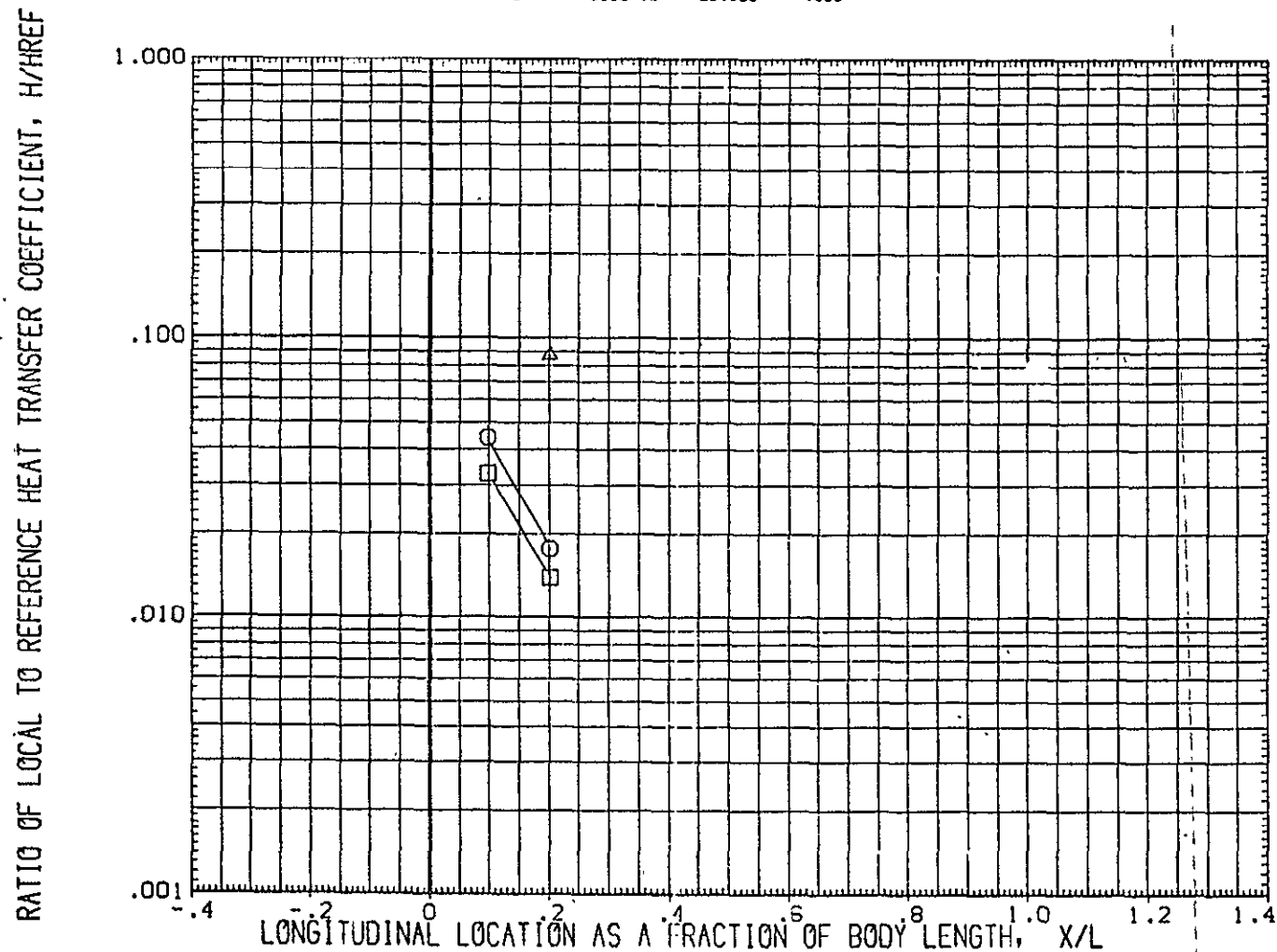


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = .900 PHI = 30.000

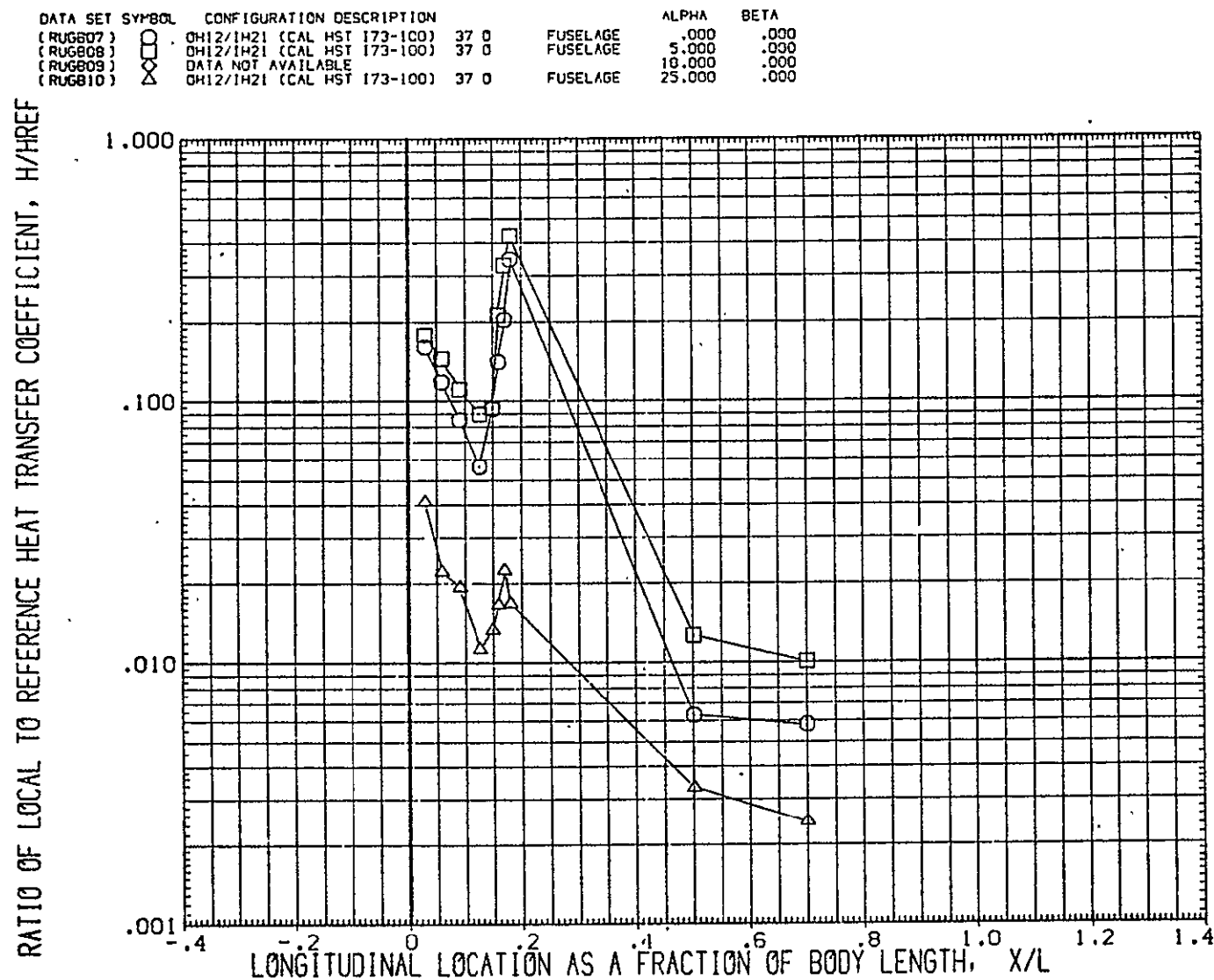


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 19.180 HAW/HT = .900 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG907)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .000	.000
(RUG908)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 5.000	.000
(RUG909)	DATA NOT AVAILABLE	10.000	.000
(RUG910)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

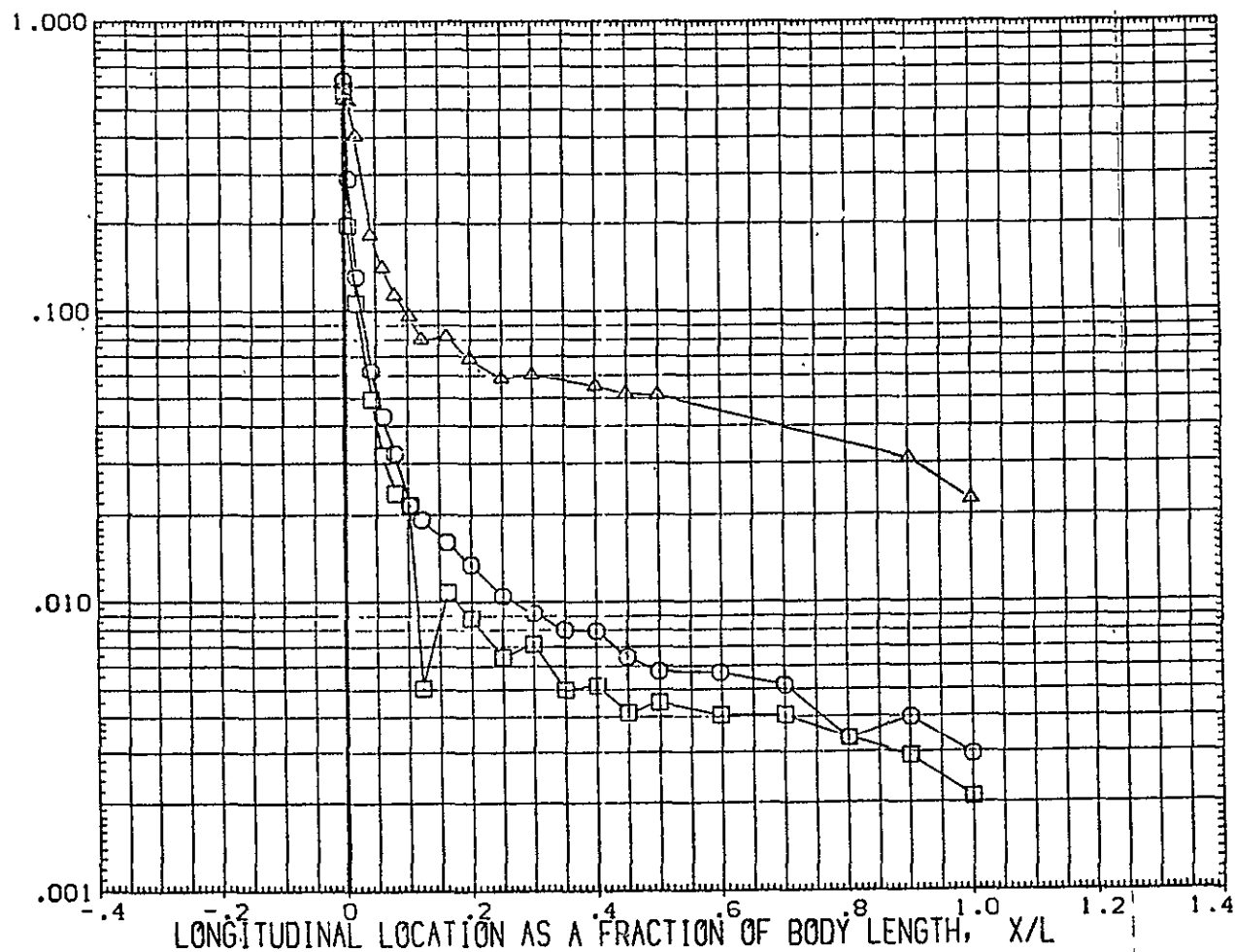


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L_1

MACH = 19.180 HAW/HT = 1.000 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUGB08)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUGB09)	DATA NOT AVAILABLE	10.000	.000
(RUGB10)	DATA NOT AVAILABLE	25.000	.000

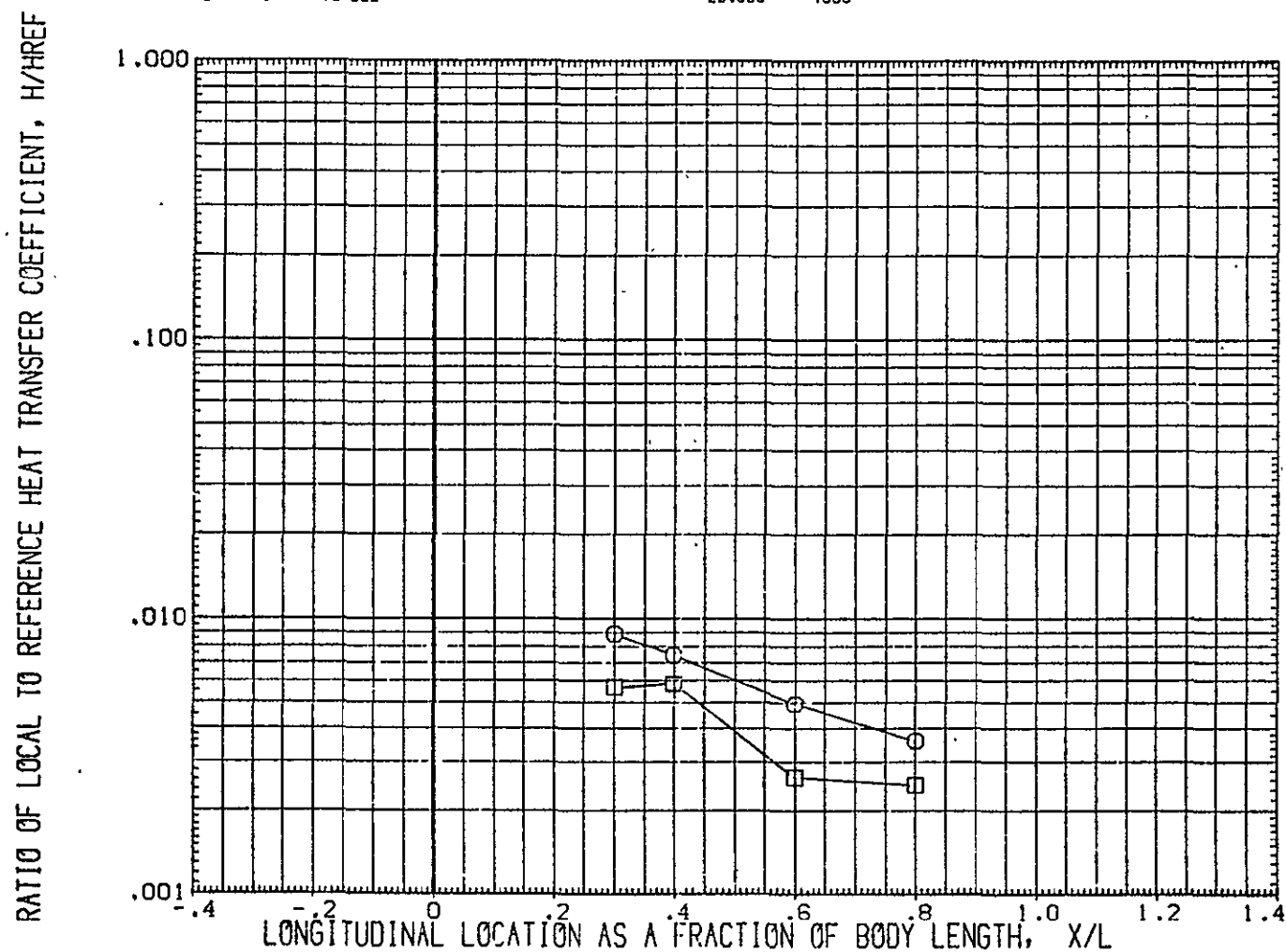


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 19.180 HAW/HT = 1.000 PHI = 25.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG207)	□	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .000	.000
(RUG809)	◇	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 5.000	.000
(RUG809)	×	DATA NOT AVAILABLE	10.000	.000
(RUG810)	△	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

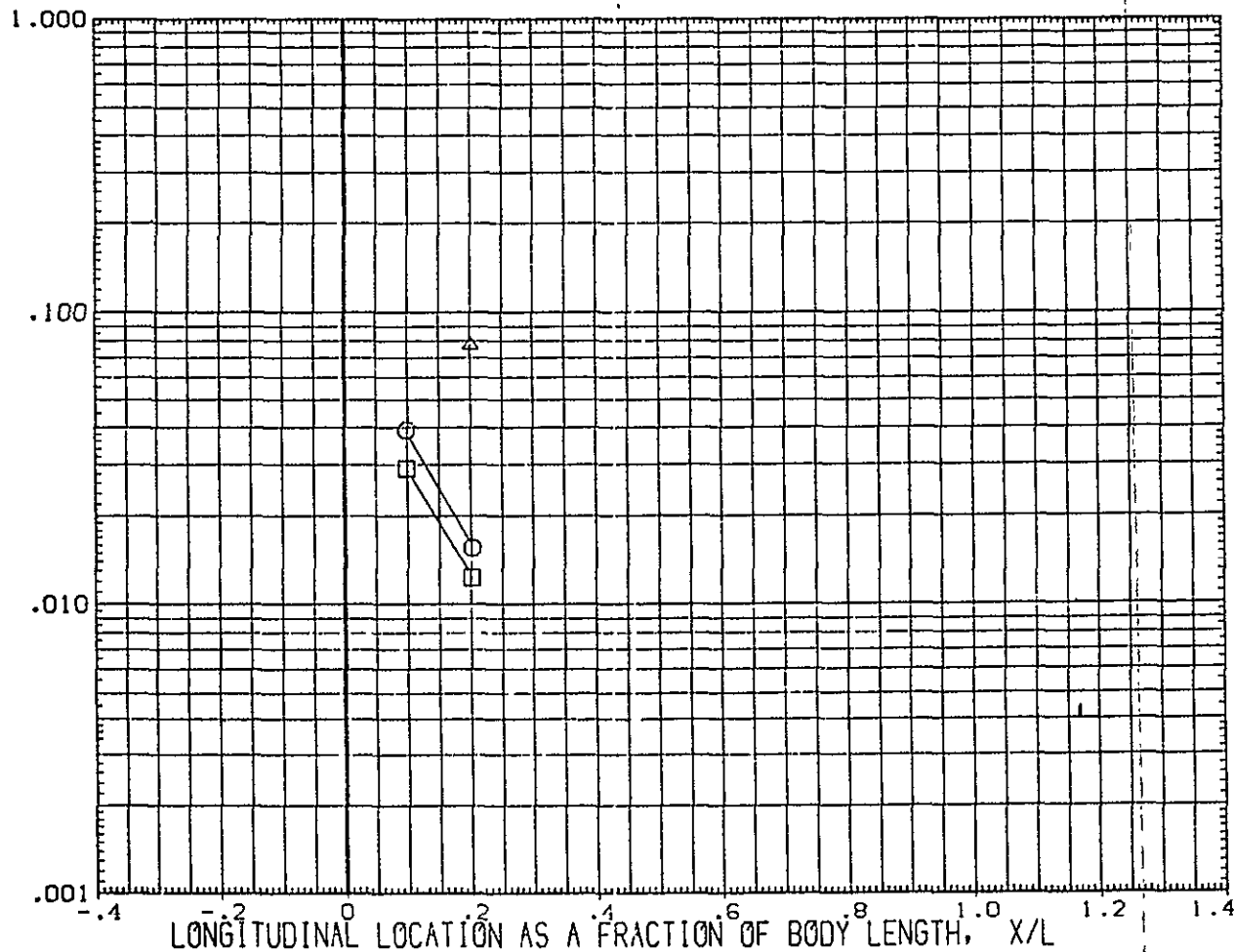


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = 1.000 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .000	.000
(RUG808)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 5.000	.000
(RUG809)	DATA NOT AVAILABLE	10.000	.000
(RUG810)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

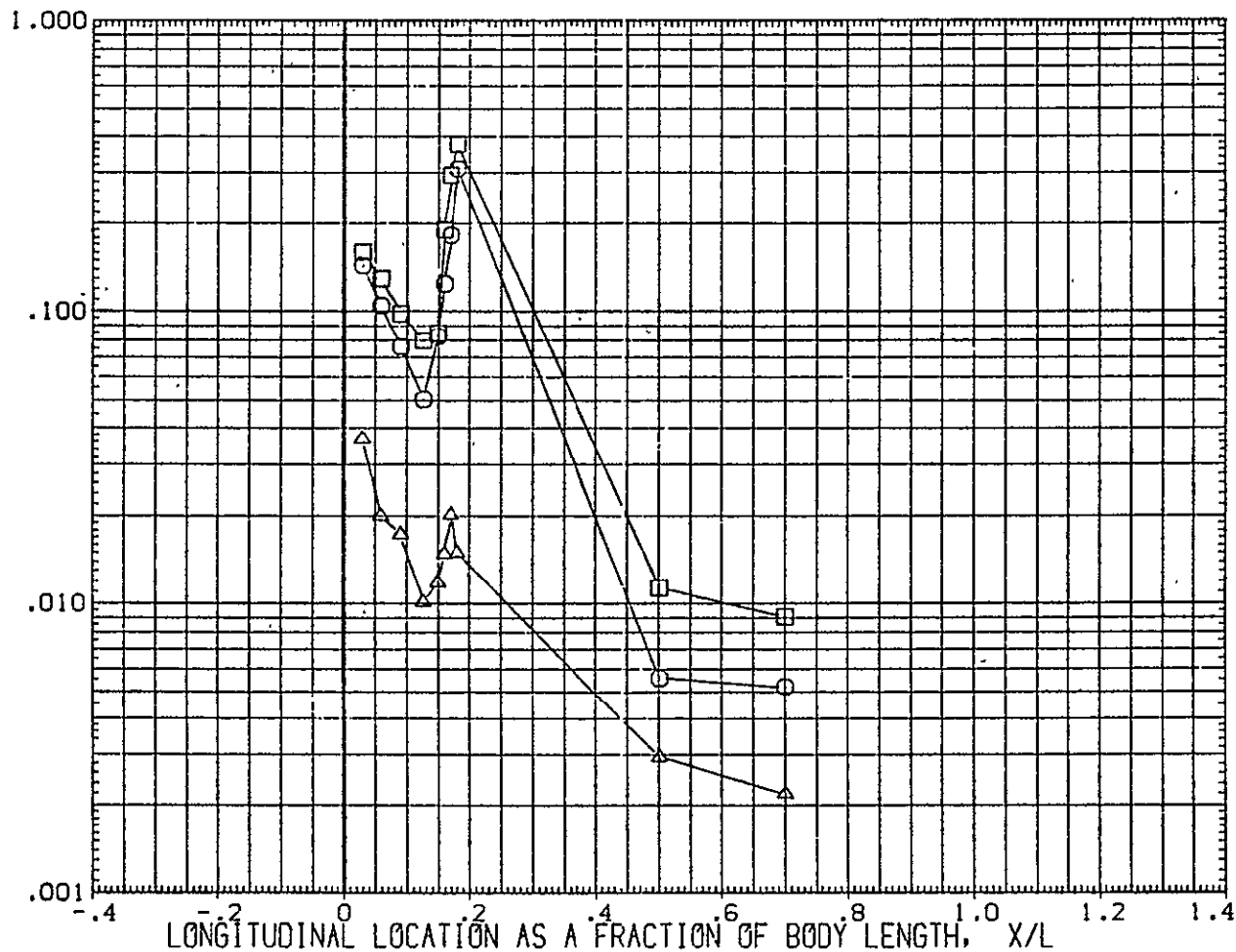


FIG. 18 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT= 1.000 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

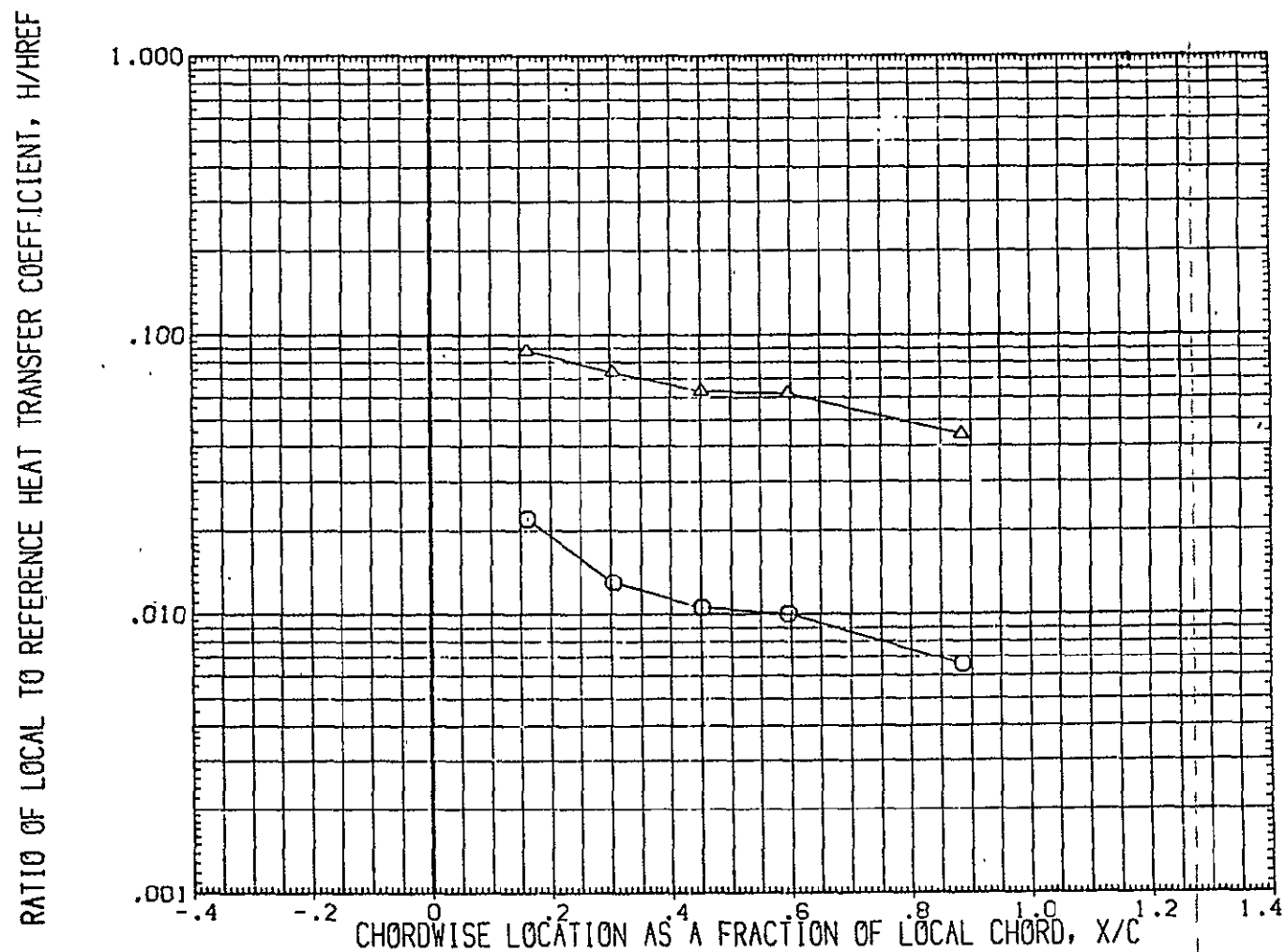


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = .850 $2Y/B$ = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/IP21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	OH12/IP21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

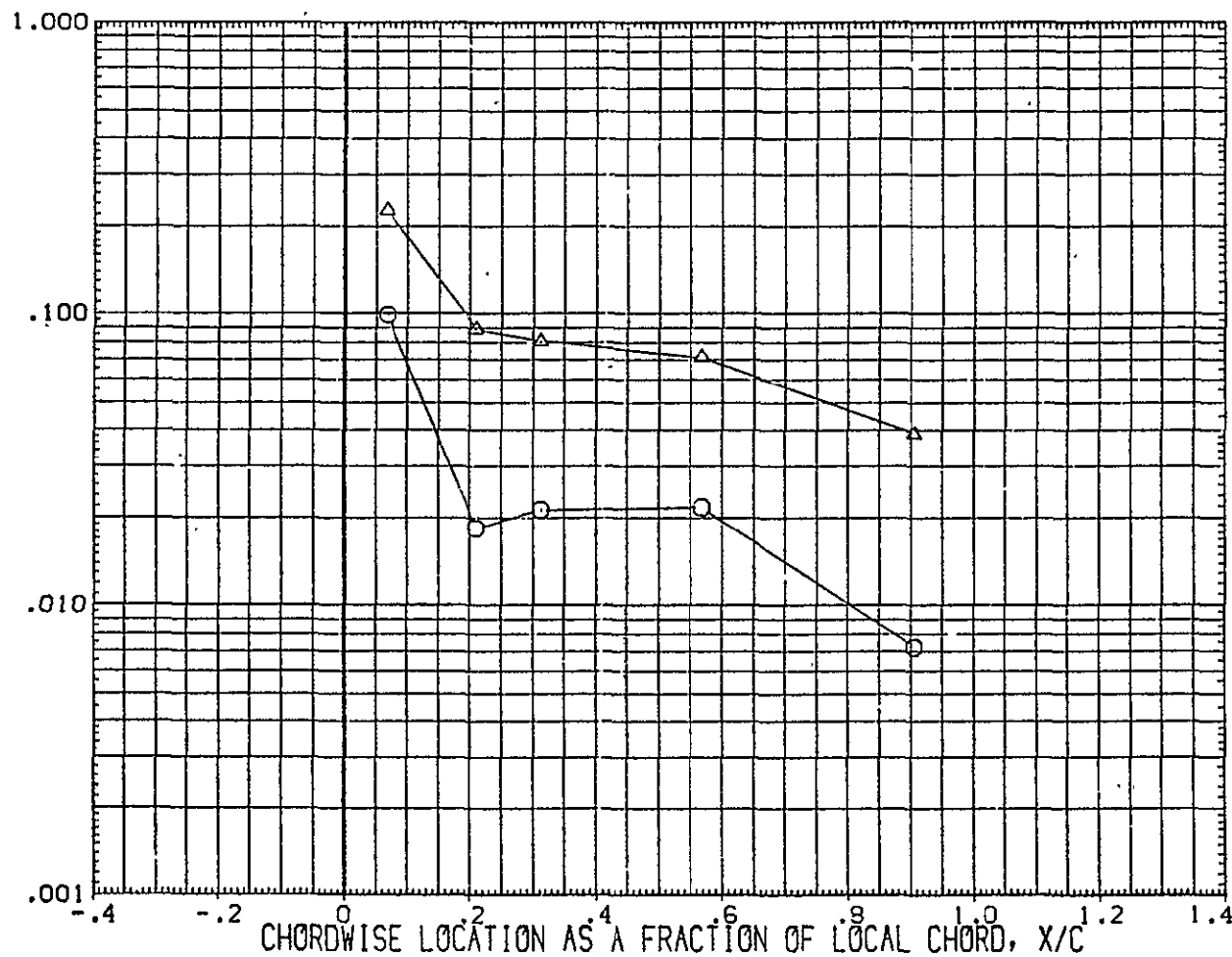


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = .850 $2Y/B$ = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

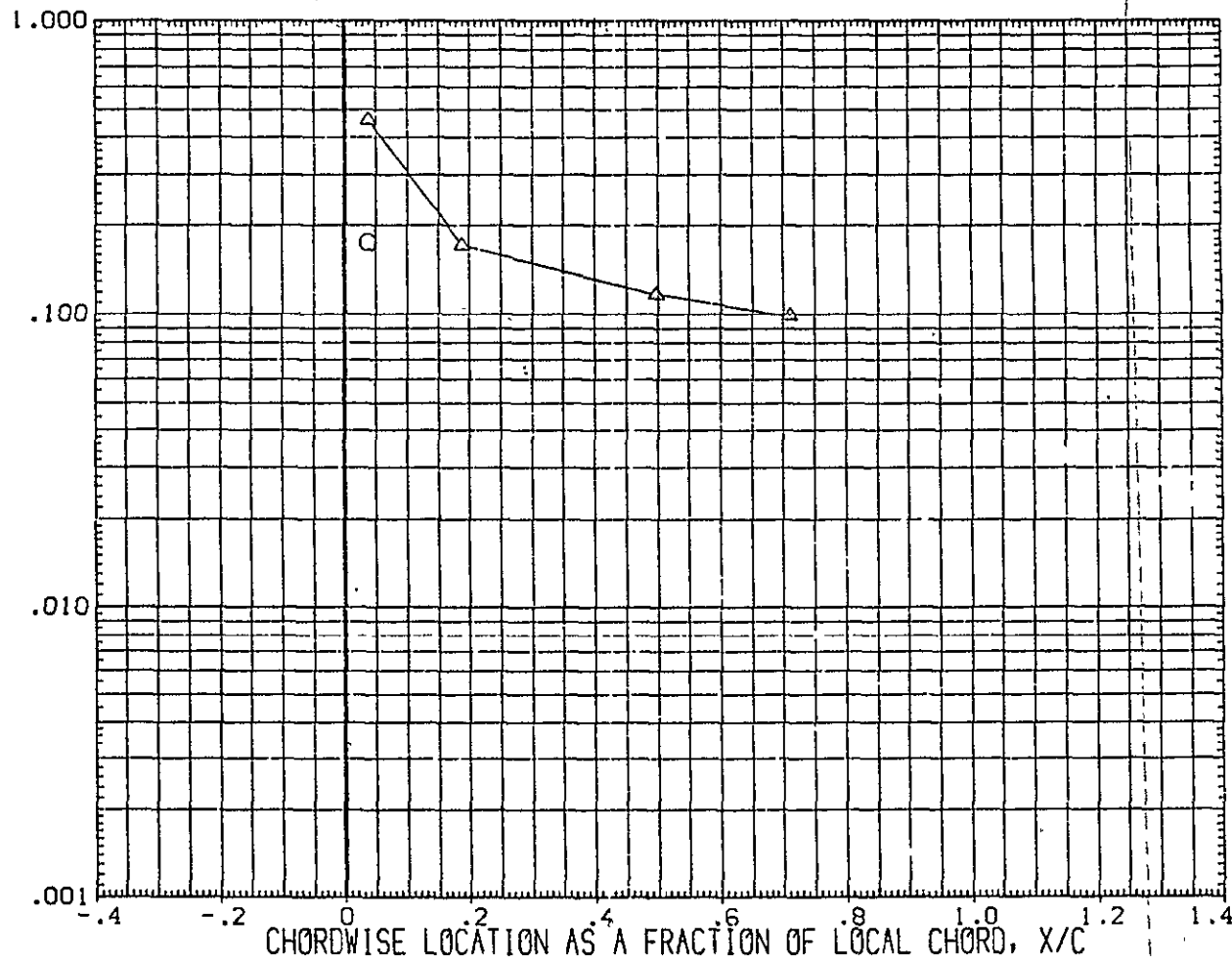


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = .850 2Y/B = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	25.000

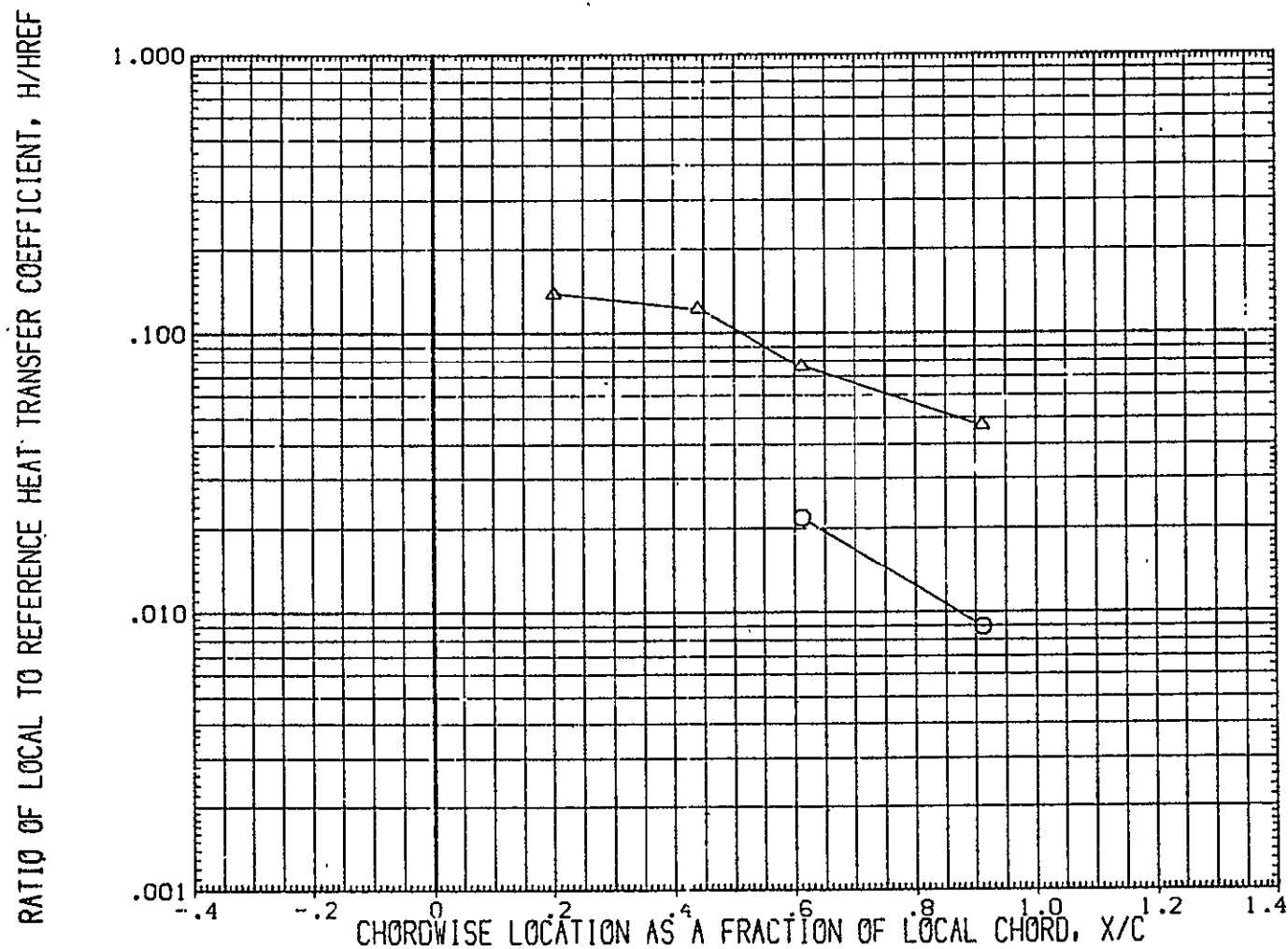


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = .850 $2Y/B$ = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

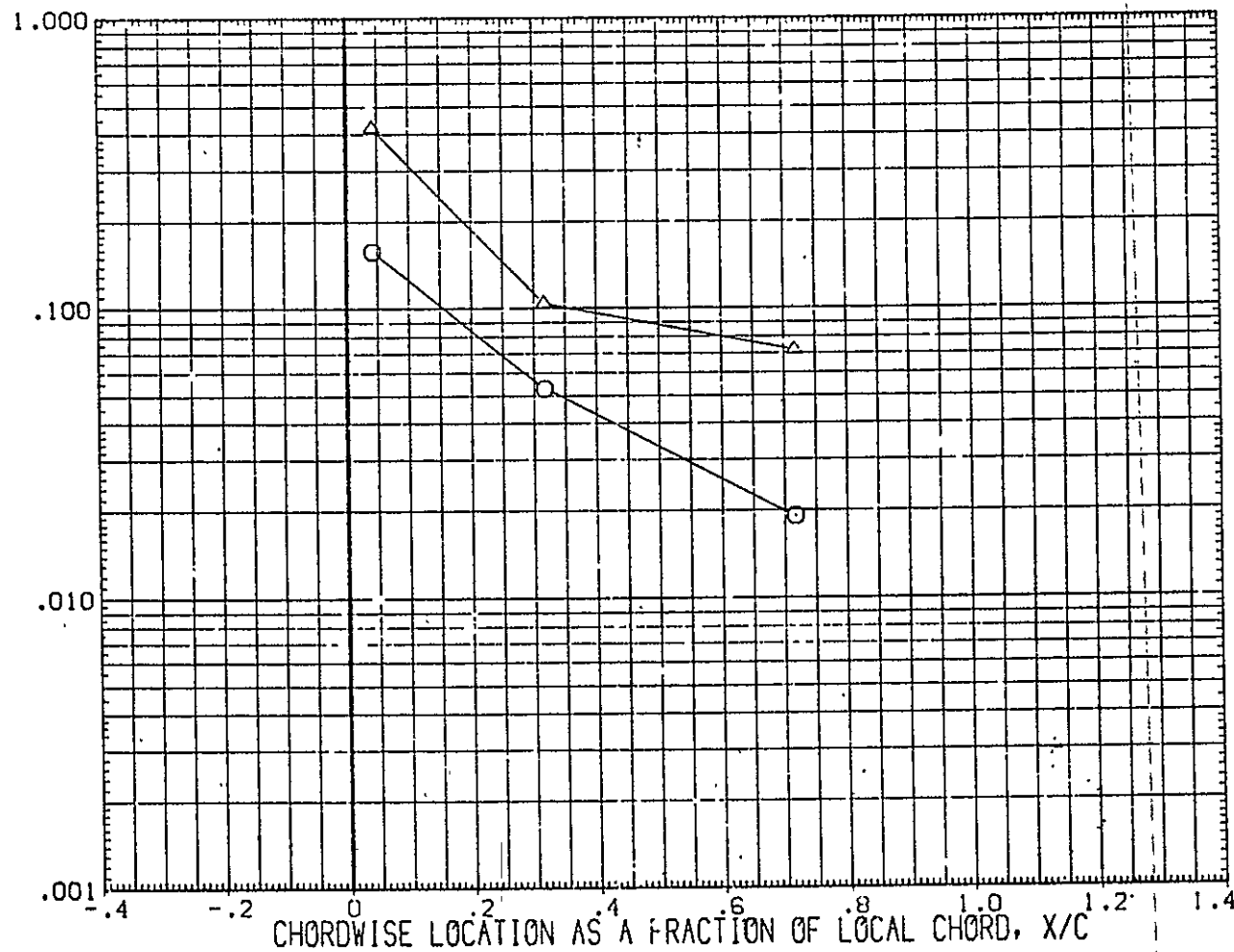


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = .850 $2Y/B$ = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CH12/1H21 (CAL HST 173-100) 37 D WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 D WING L.S.	25.000	.000

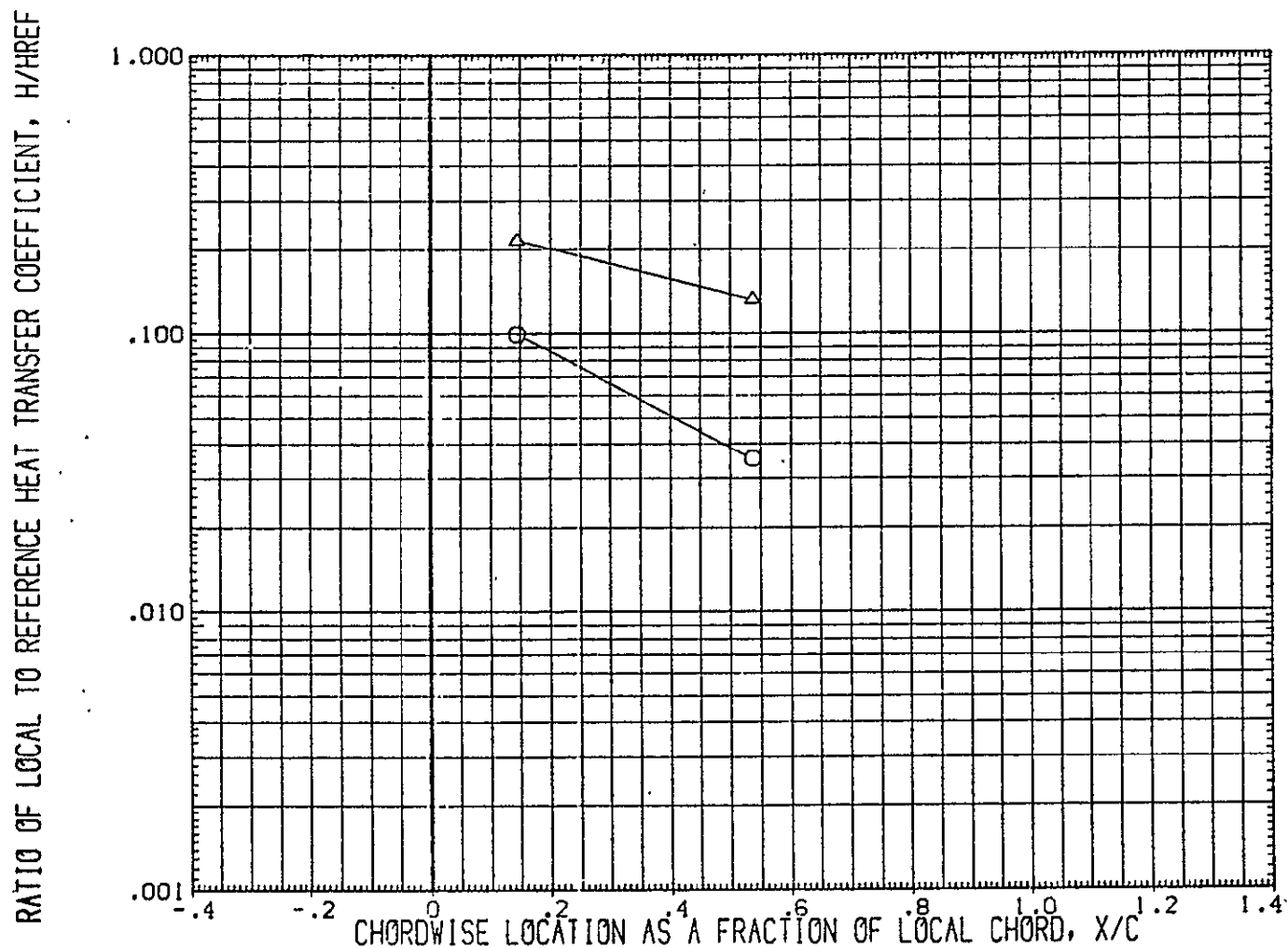


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = .850 $2Y/B$ = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

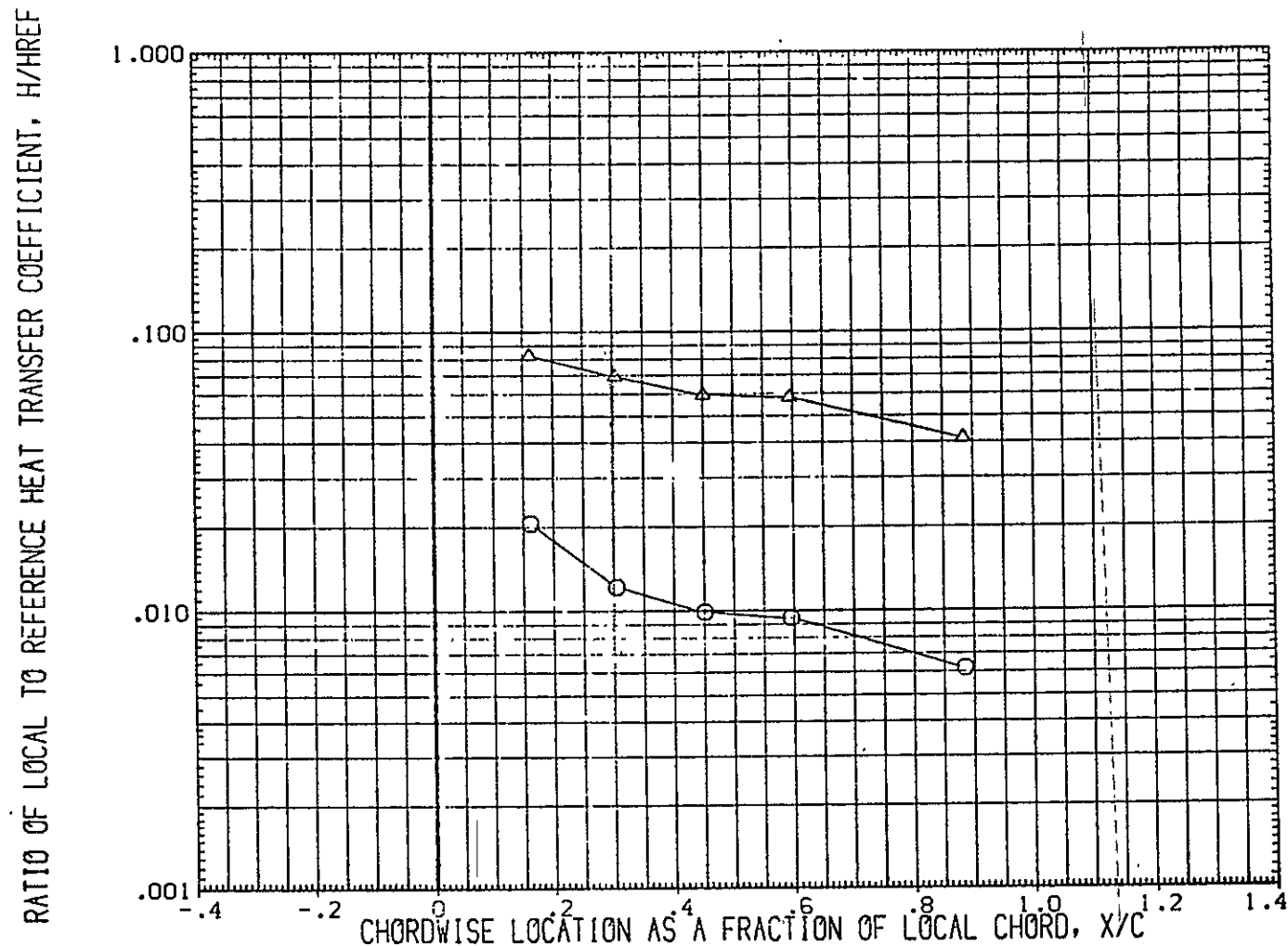


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 6.980 HAW/HT = .900 $2Y/B = .250$ PAGE 442

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGW07)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(PUGW03)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

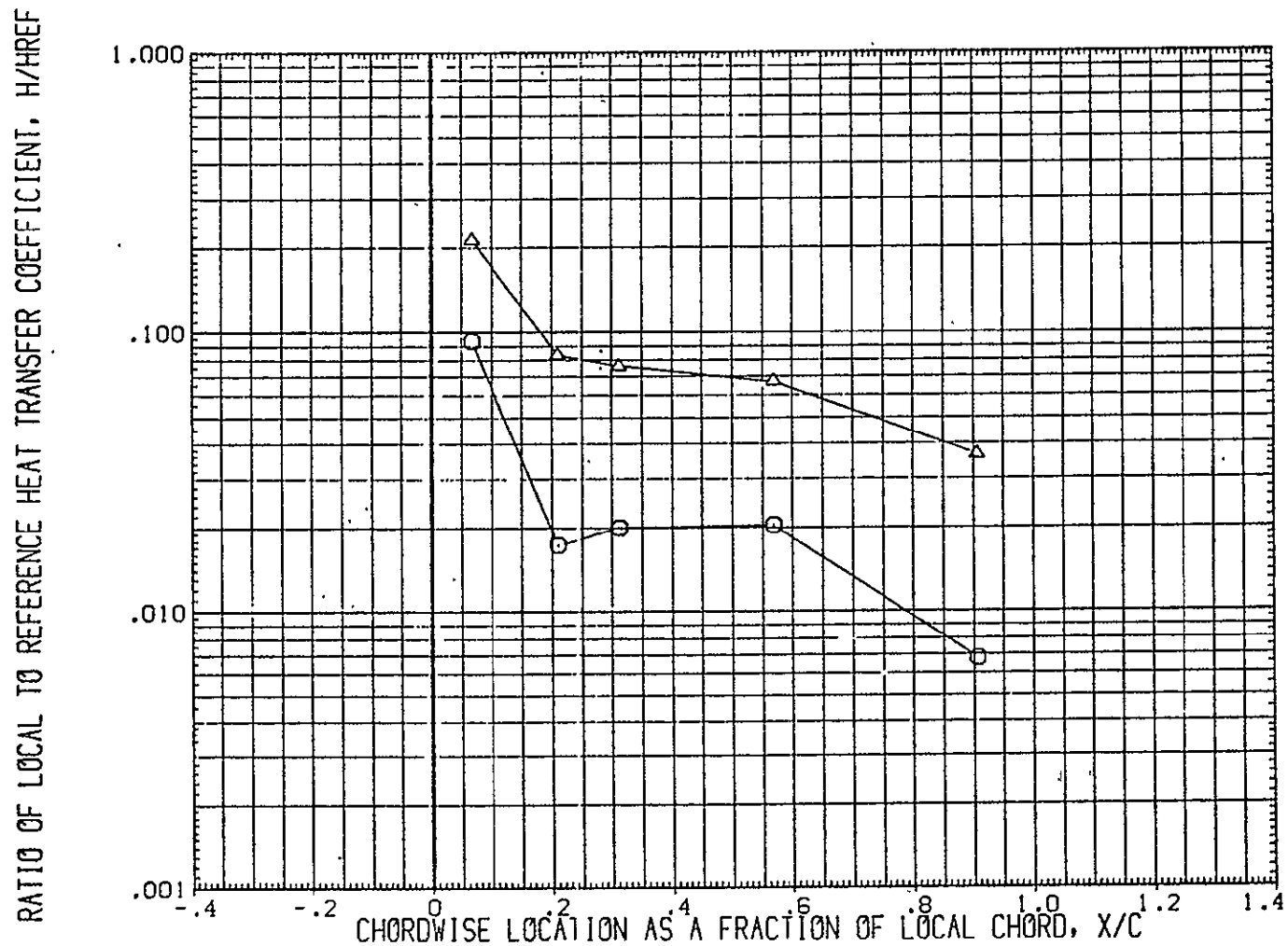


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = .900 $2Y/B$ = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1421 (CAL HST 173-100) 37 0	4.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	OH12/1421 (CAL HST 173-100) 37 0	25.000	.000

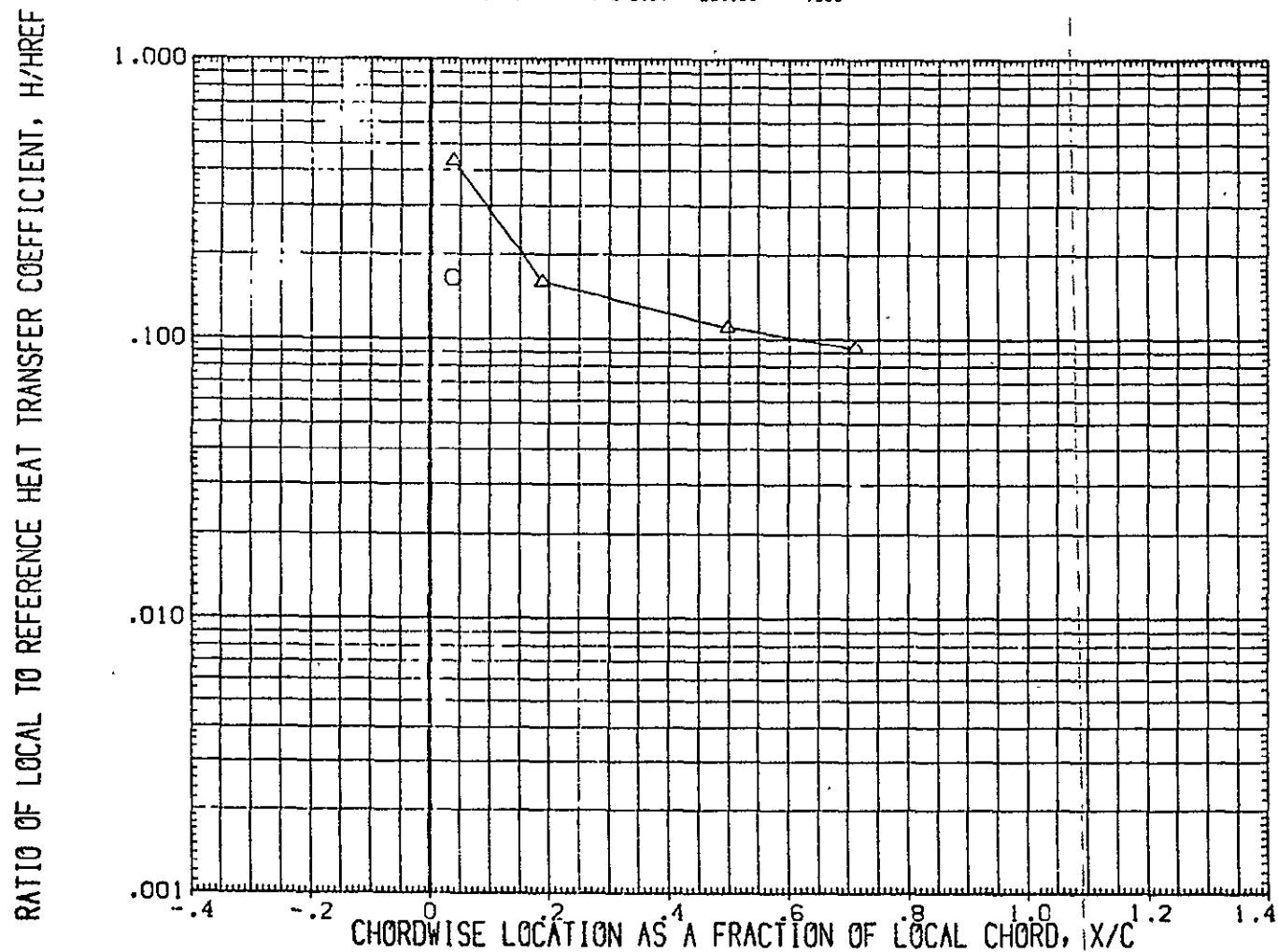


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L

MACH = 6.980 HAW/HT = .900 $2Y/B$ = .500

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

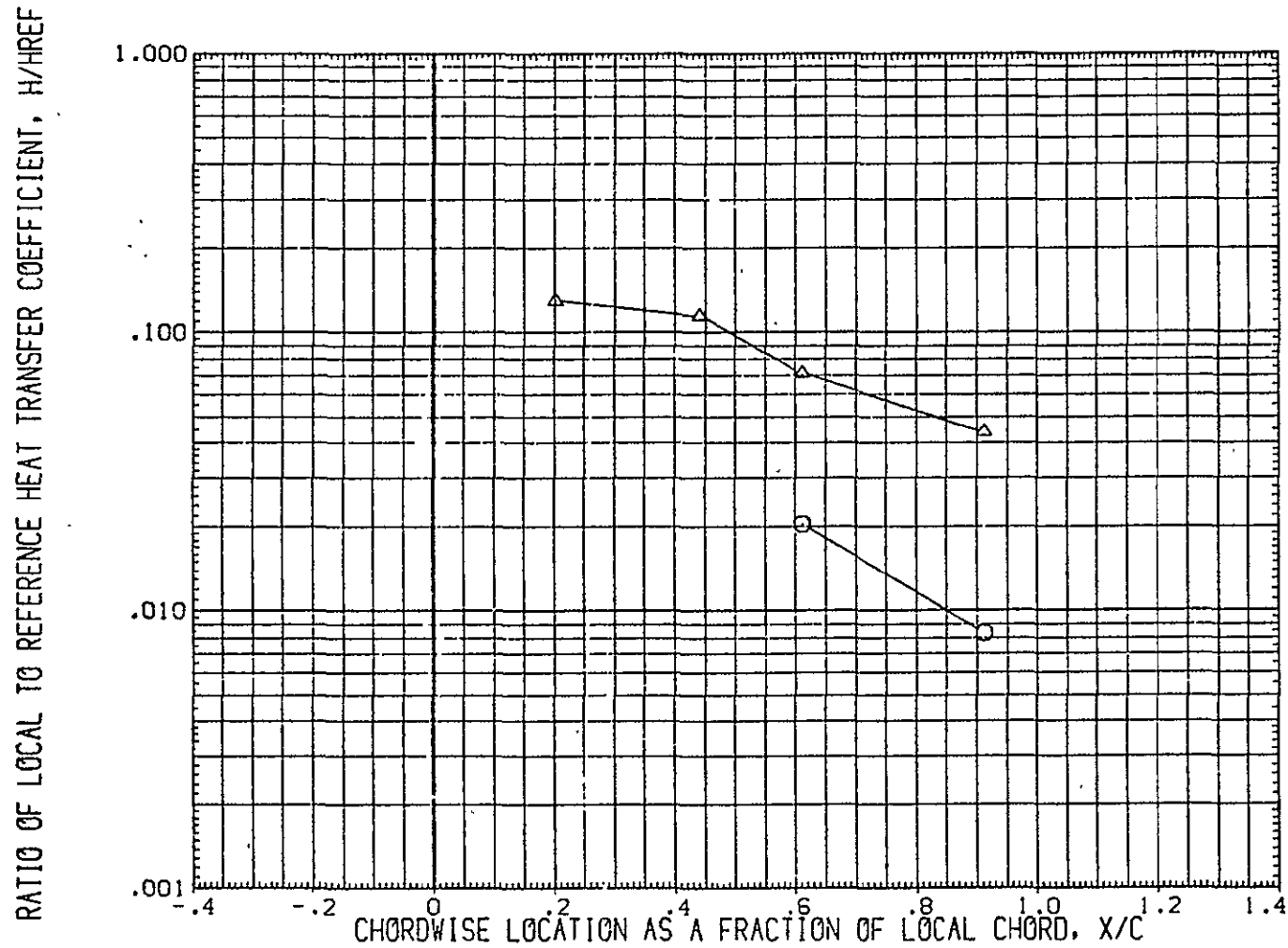


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = .900 $2Y/B$ = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

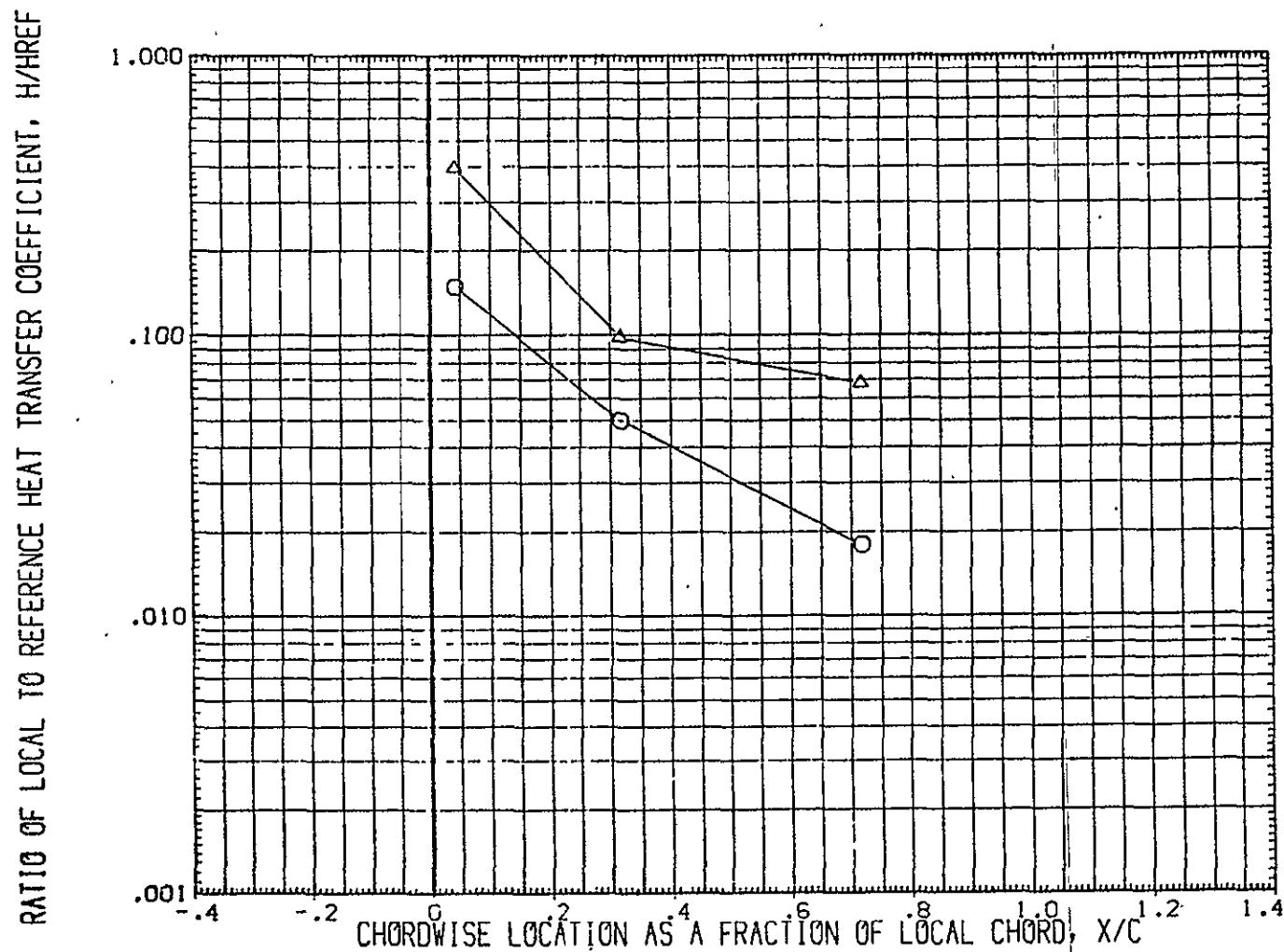


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 6.980 HAW/HT = .900 $2Y/B$ = .750

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	○	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(UGV08)	□	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	◇	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	△	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

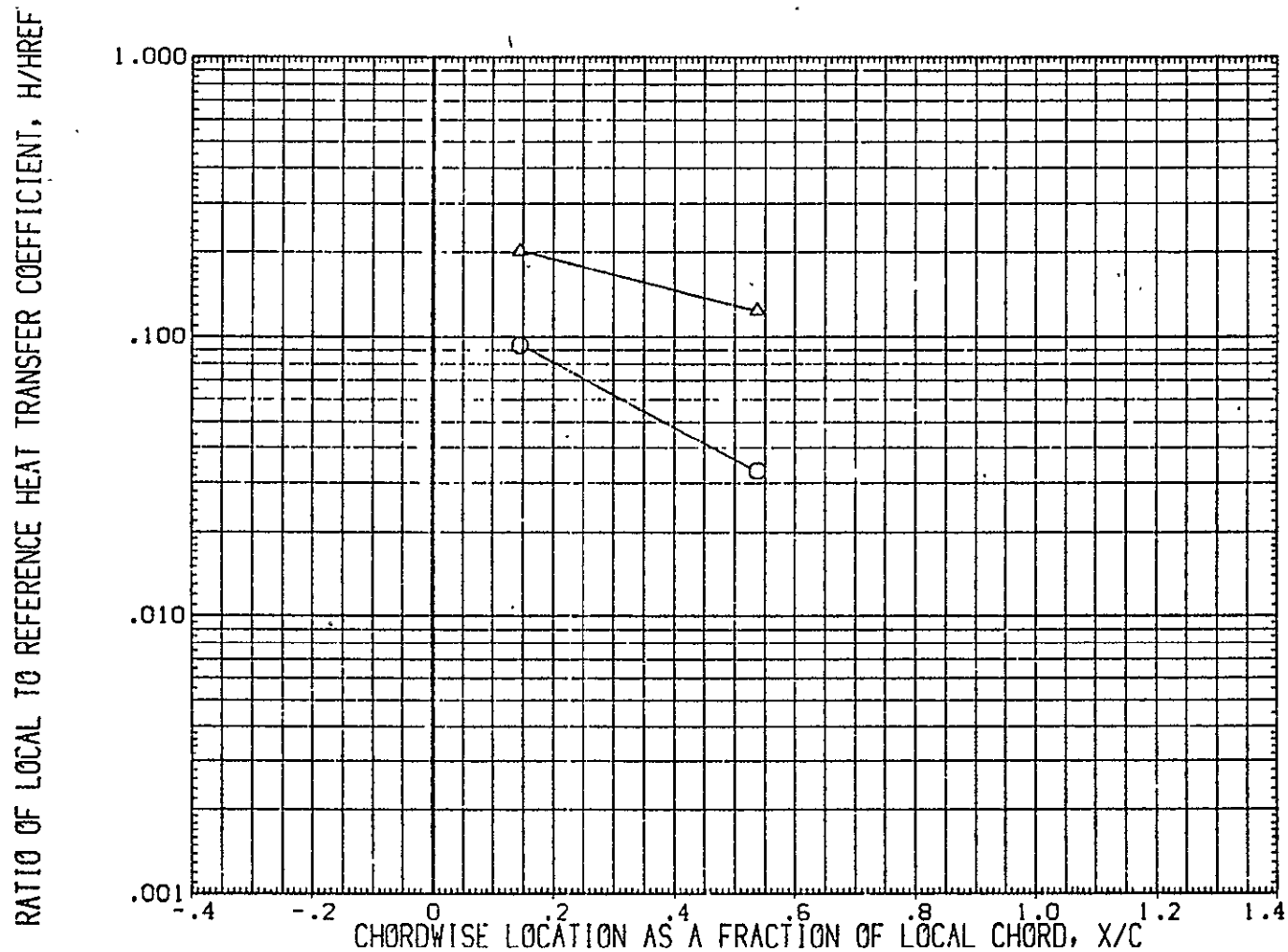


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = .900 $2Y/B$ = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

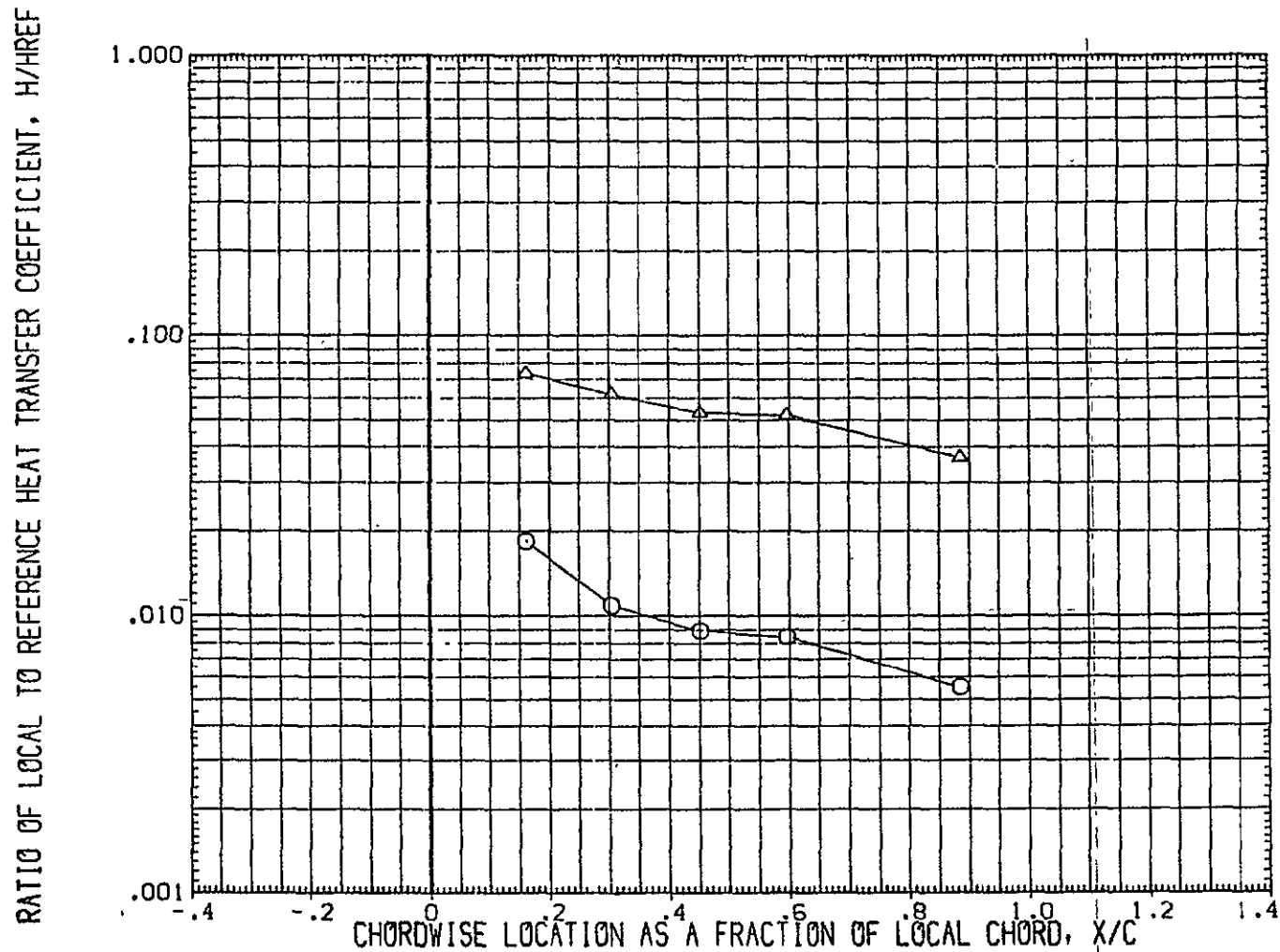


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = 1.000 $2Y/B = .250$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGV07)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(PUGV08)	DATA NOT AVAILABLE	5.000	.000
(PUGV09)	DATA NOT AVAILABLE	10.000	.000
(PUGV10)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

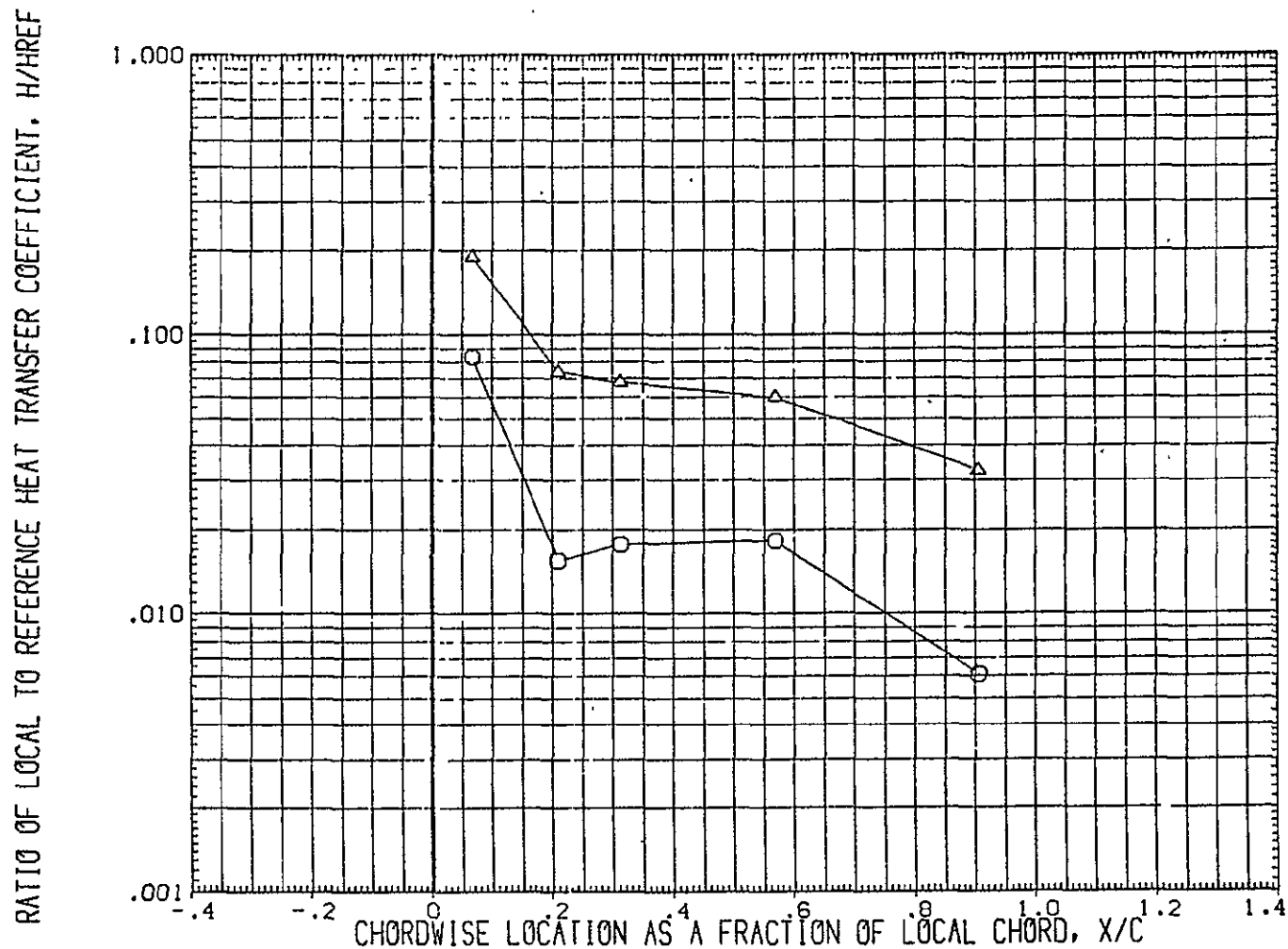


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 6.980 HAW/HT= 1.000 $2Y/B = .400$ PAGE 449

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUG#07)	○	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUG#08)	□	DATA NOT AVAILABLE	5.000	.000
(RUG#09)	◇	DATA NOT AVAILABLE	10.000	.000
(RUG#10)	△	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

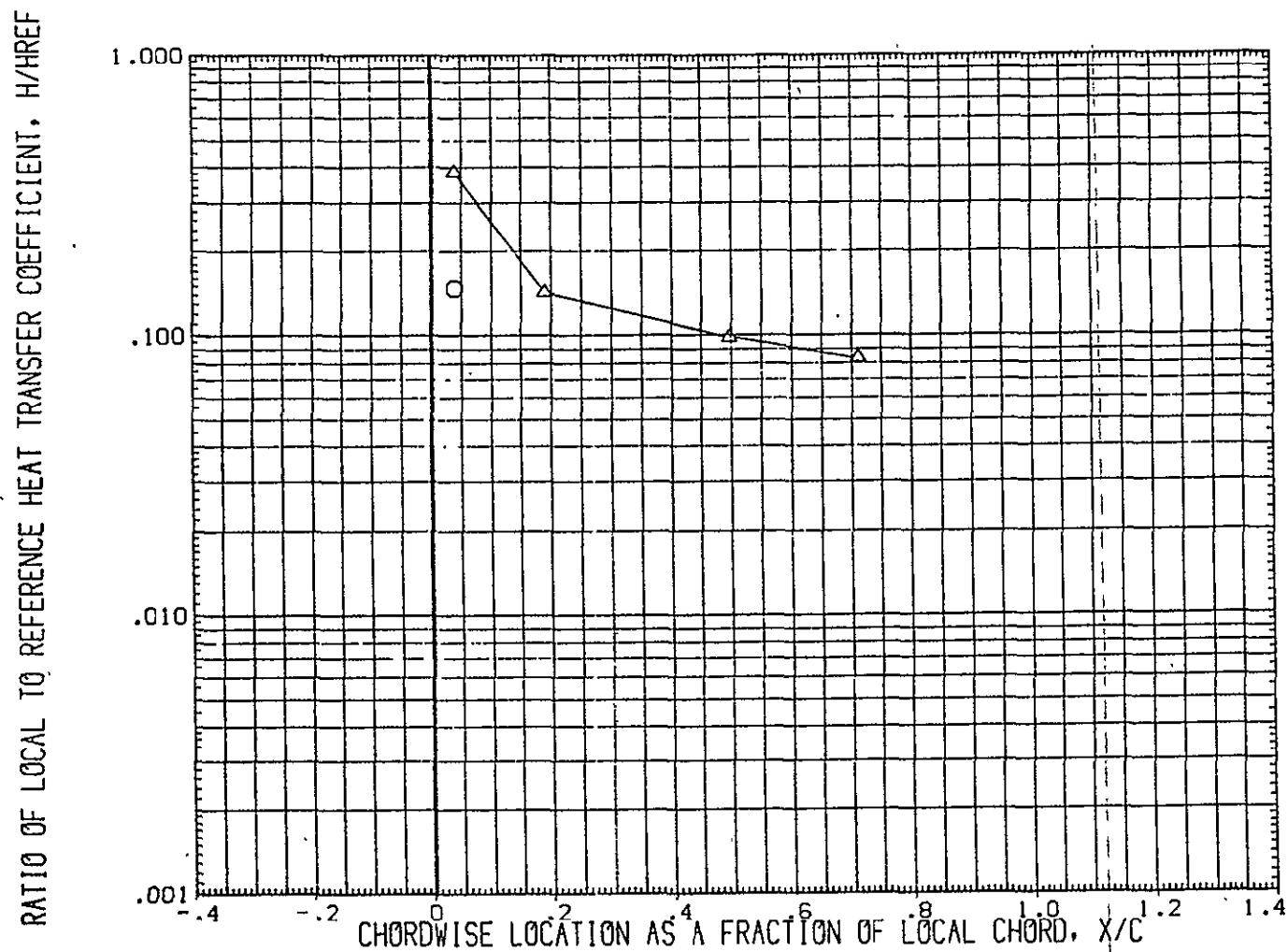


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = 1.000 2Y/B = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

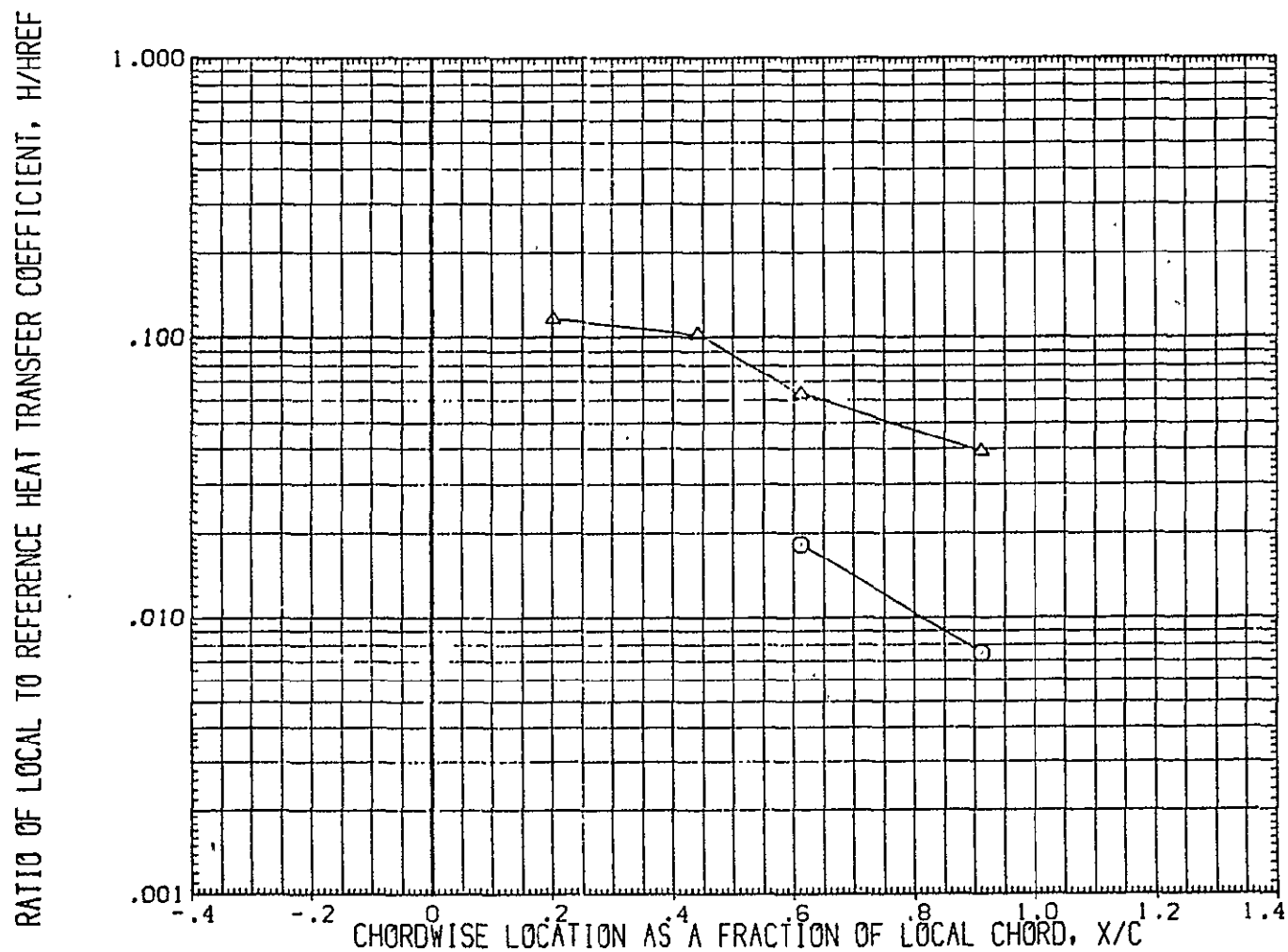


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = 1.000 $2Y/B$ = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OW12/1H21 (CAL HST 173-100) 37 D WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	OW12/1H21 (CAL HST 173-100) 37 D WING L.S.	25.000	.000

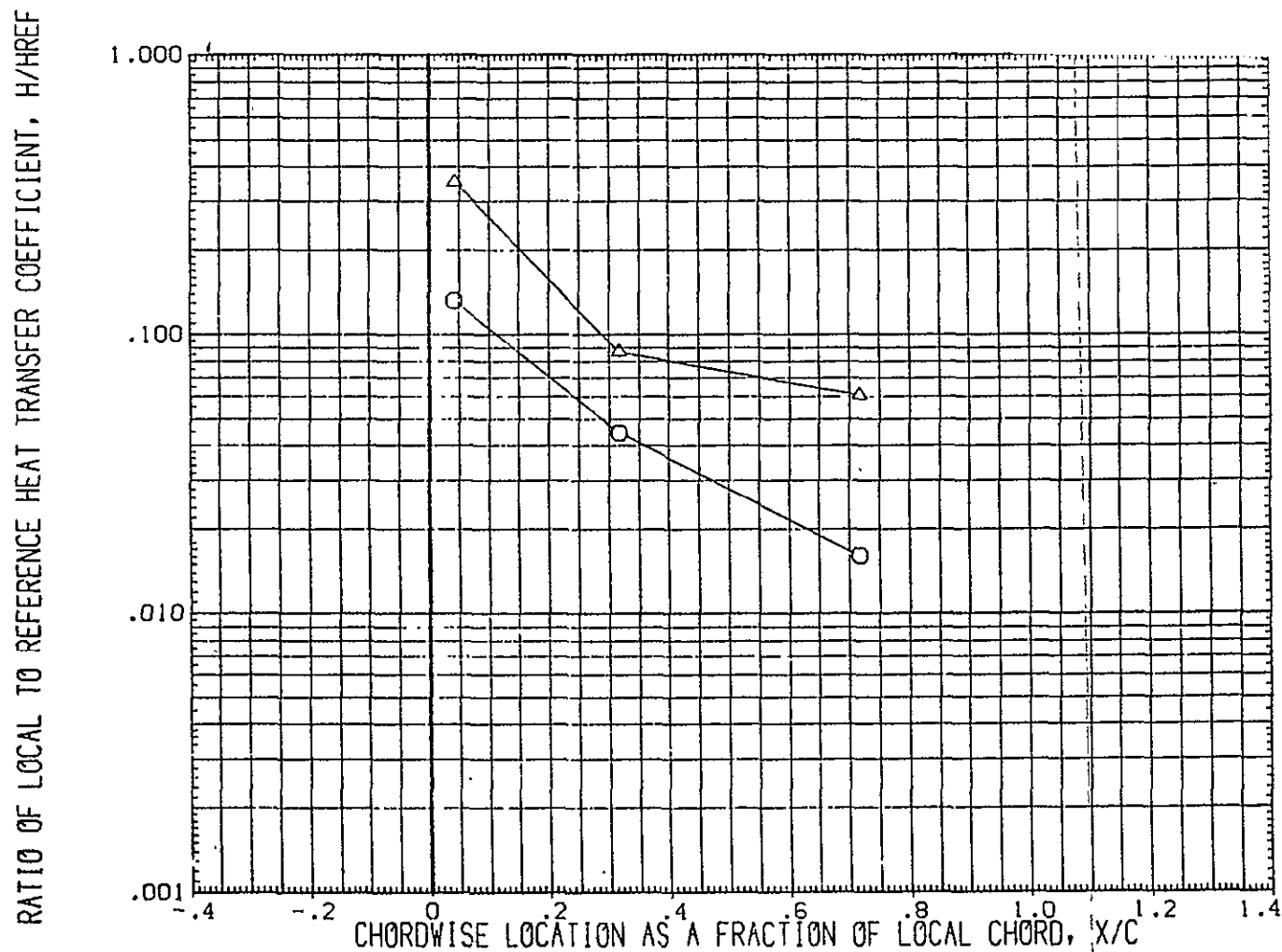


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = 1.000 $2Y/B = .750$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(PUGW08)	DATA NOT AVAILABLE	5.000	.000
(PUGW09)	DATA NOT AVAILABLE	10.000	.000
(PUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

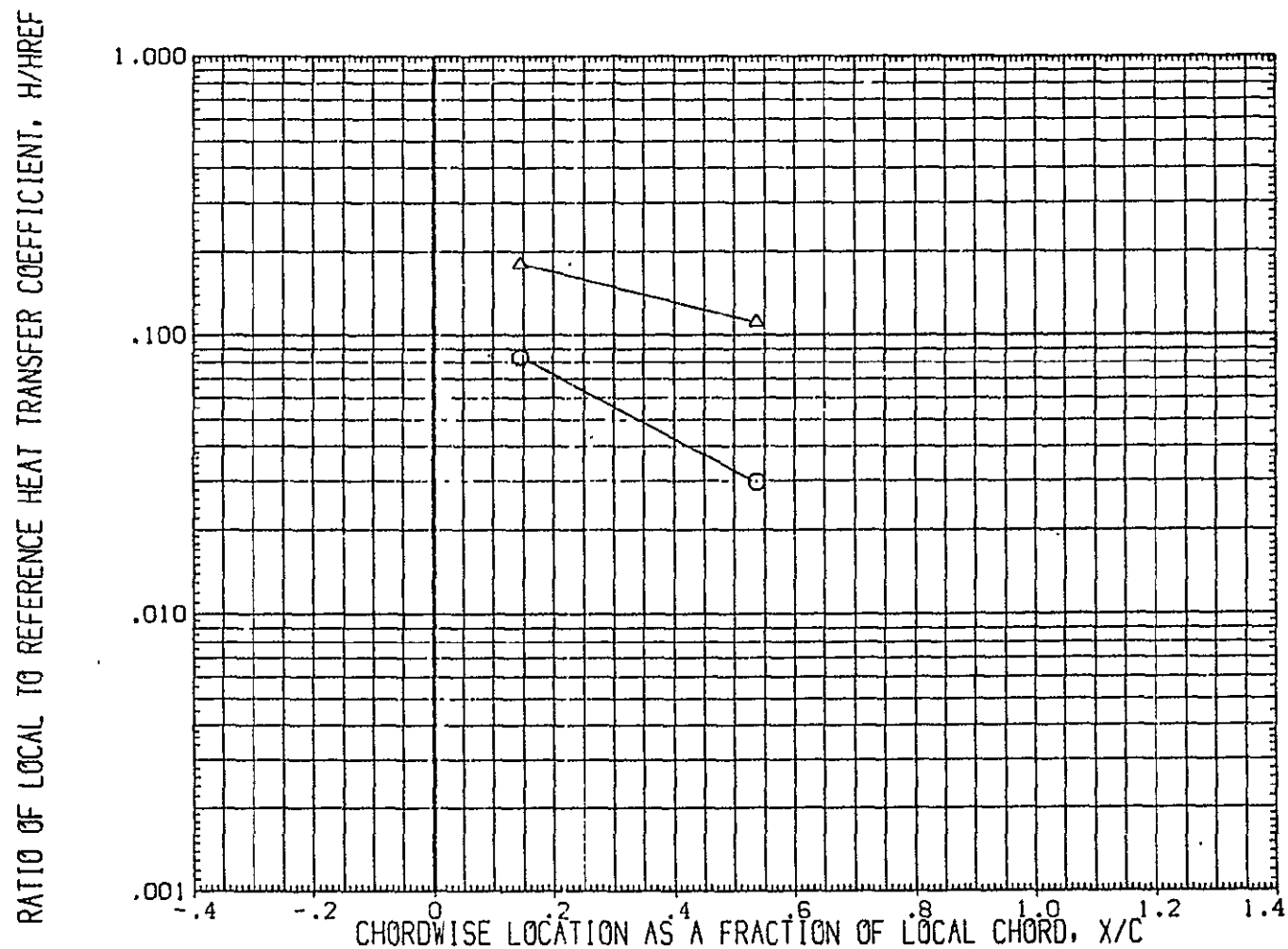


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 6.980 HAW/HT = 1.000 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OW12/1421 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	OW12/1421 (CAL HST 173-100) 37 0	WING L.S.	25.000

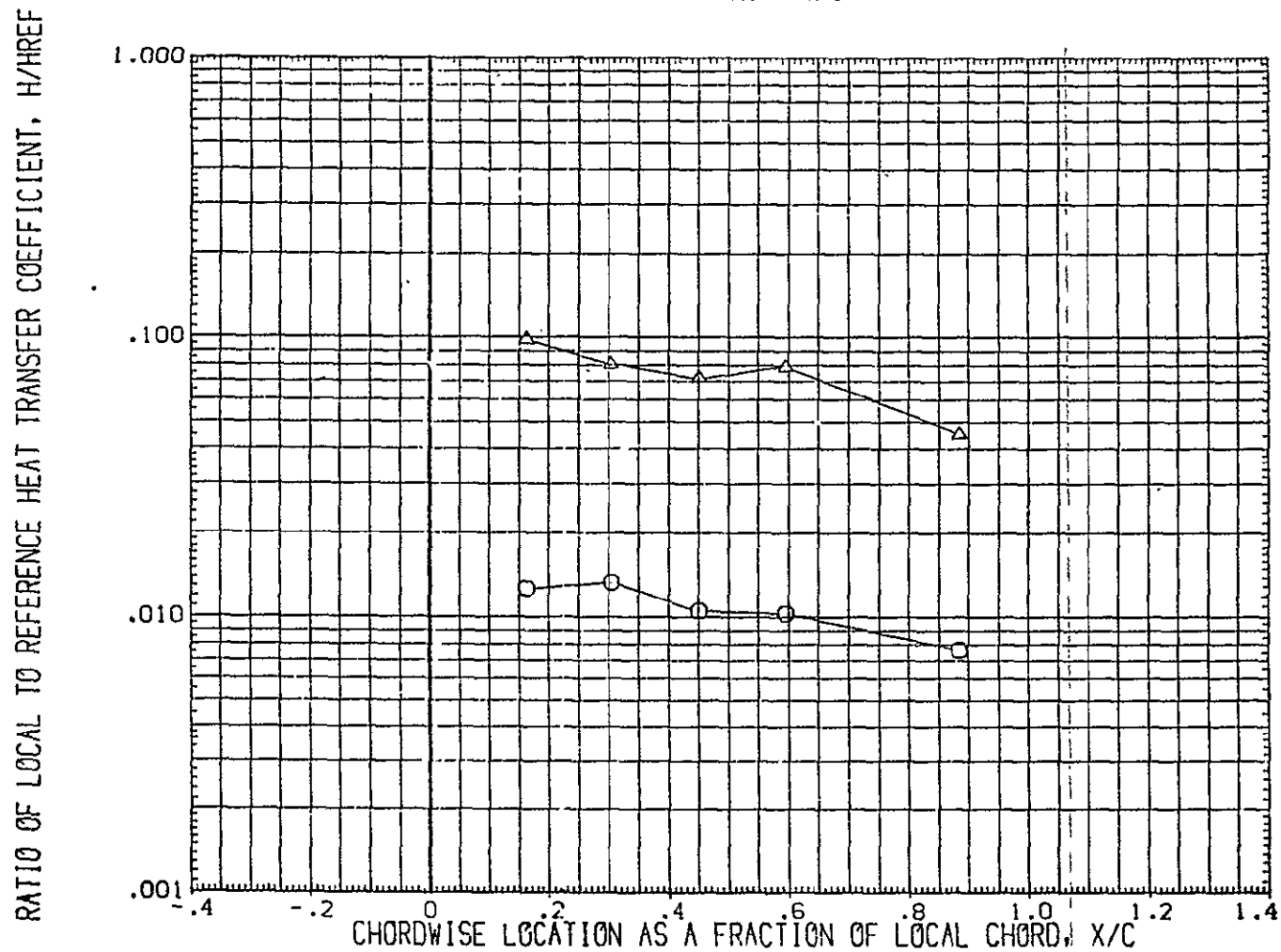


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 16.040 HAW/HT = .850 $2Y/B$ = .250

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
[RUGW07]	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
[RUGW08]	DATA NOT AVAILABLE	5.000	.000
[RUGW09]	DATA NOT AVAILABLE	10.000	.000
[RUGW10]	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

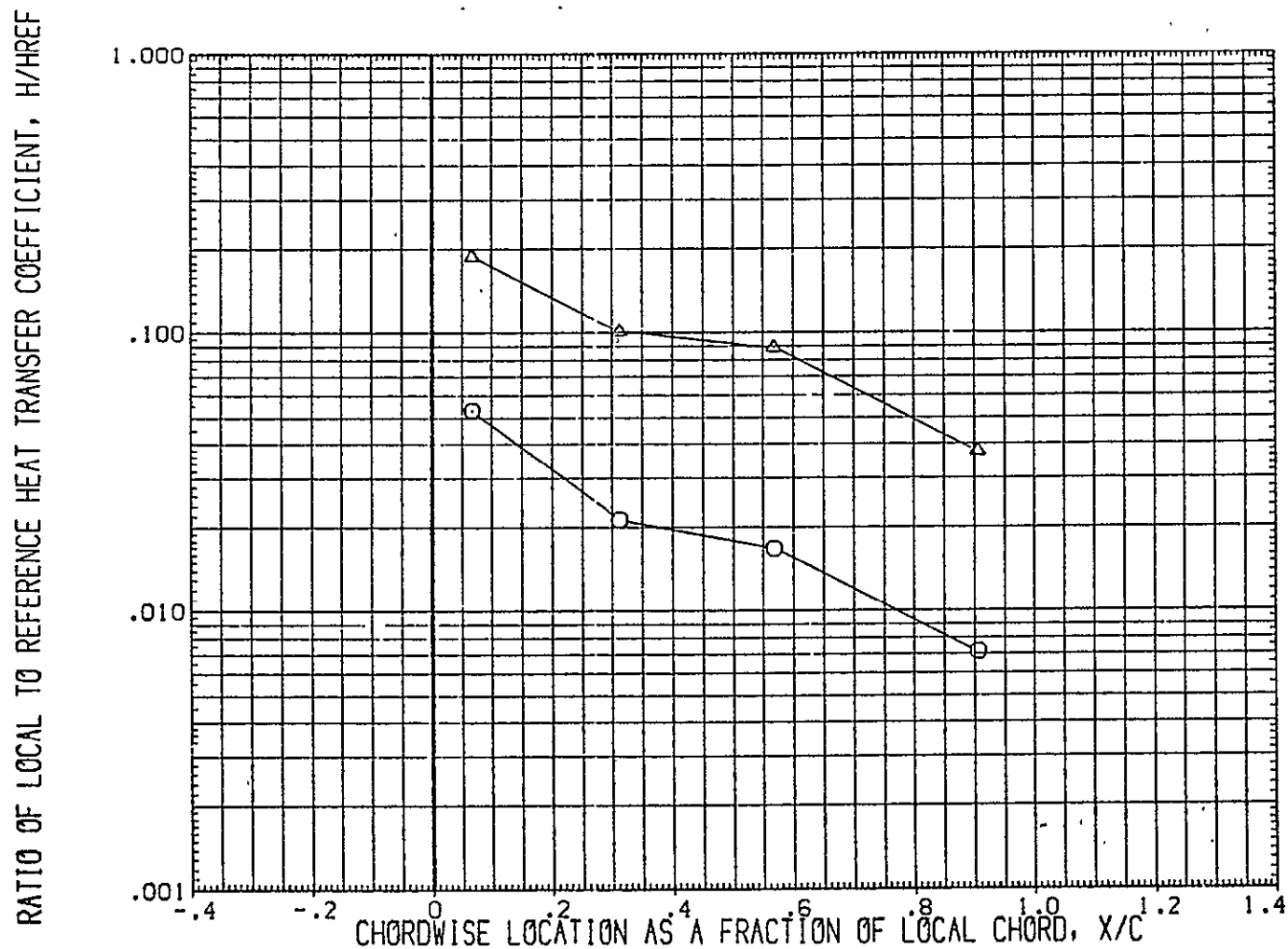


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.040 HAW/HT = .850 $2Y/B$ = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

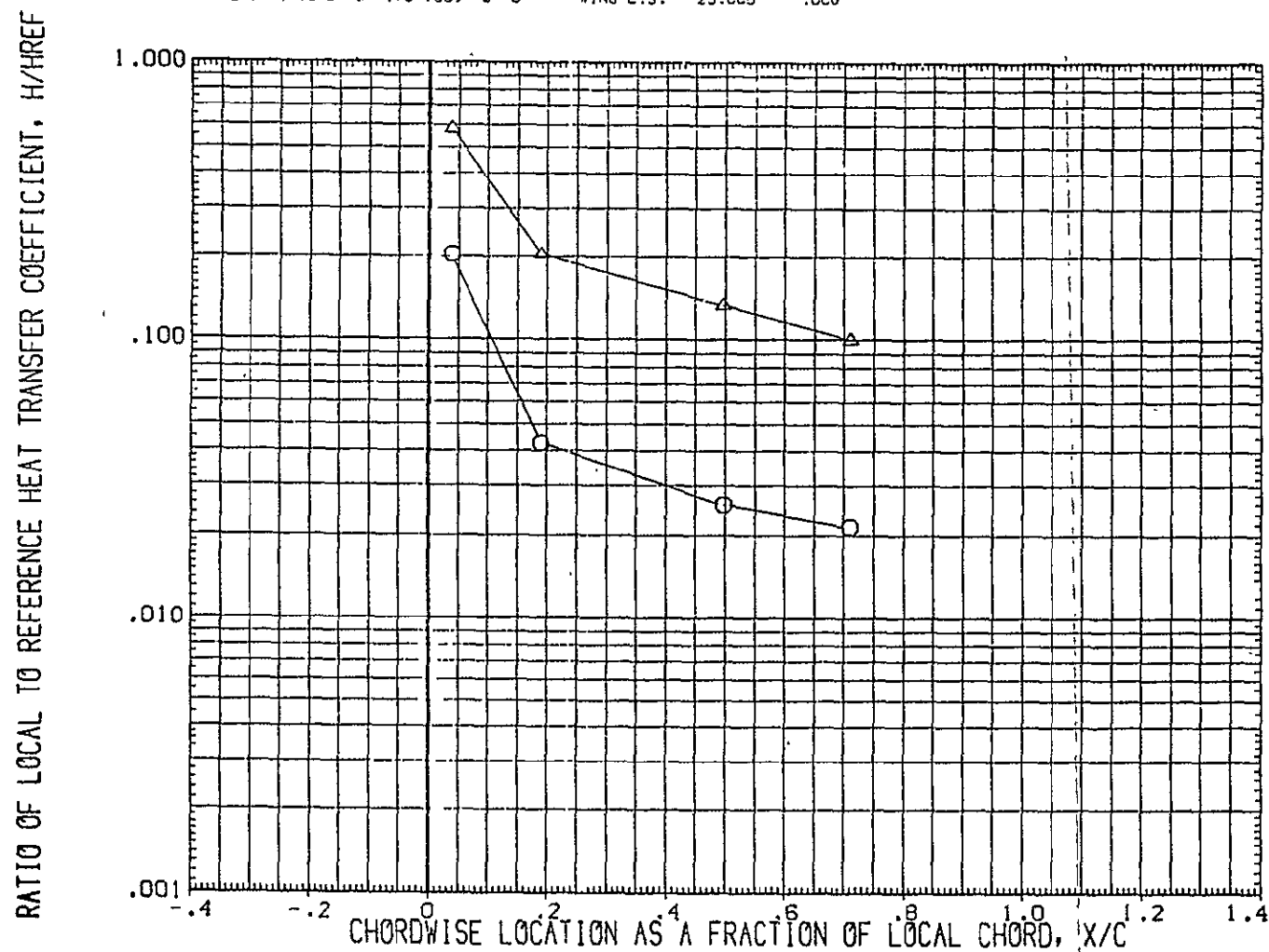


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 16.040 HAW/HT = .850 $2Y/B$ = .500

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	□	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	×	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	×	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	△	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

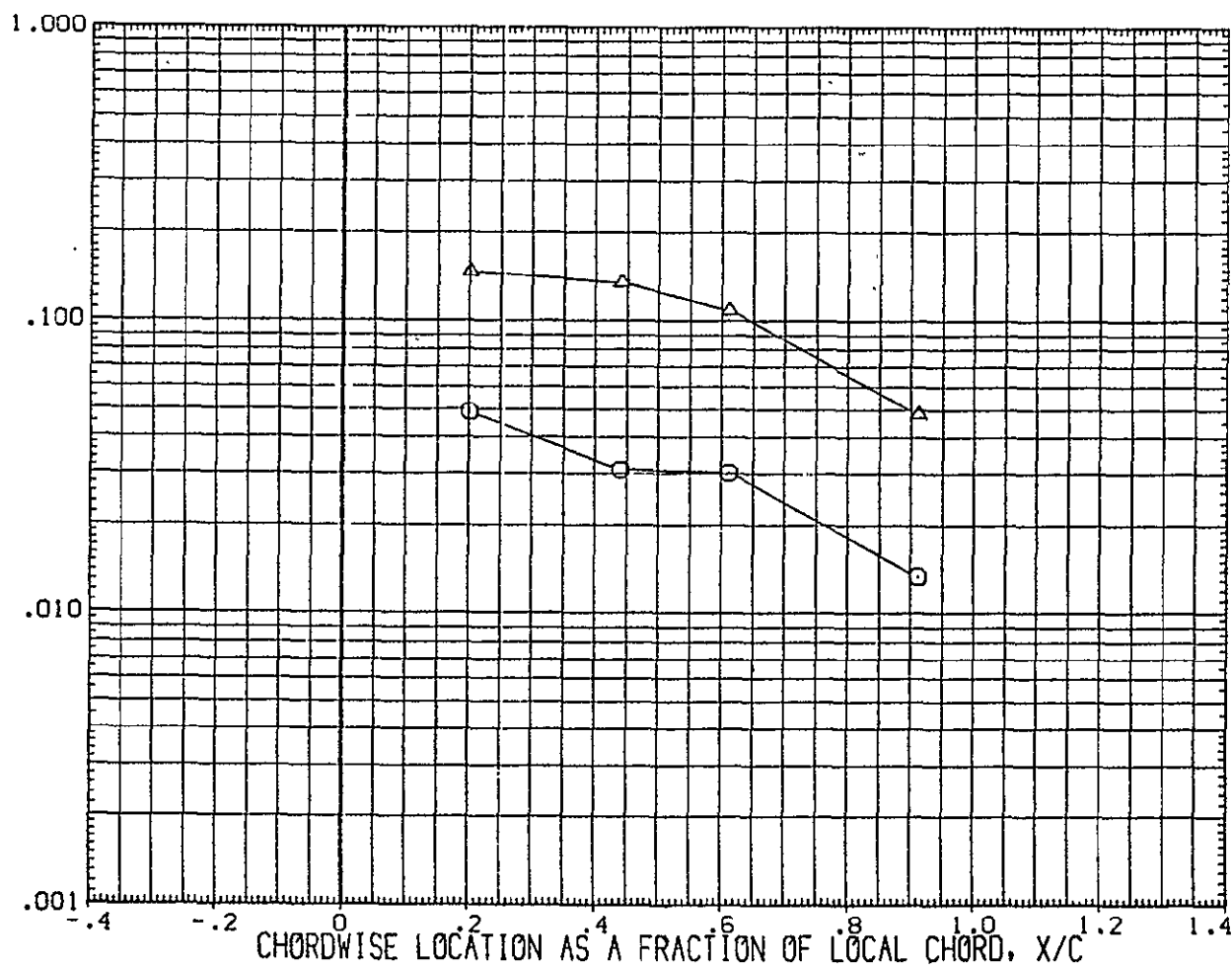


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L

MACH = 16.040 HAW/HT = .850 $2Y/B$ = .600

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

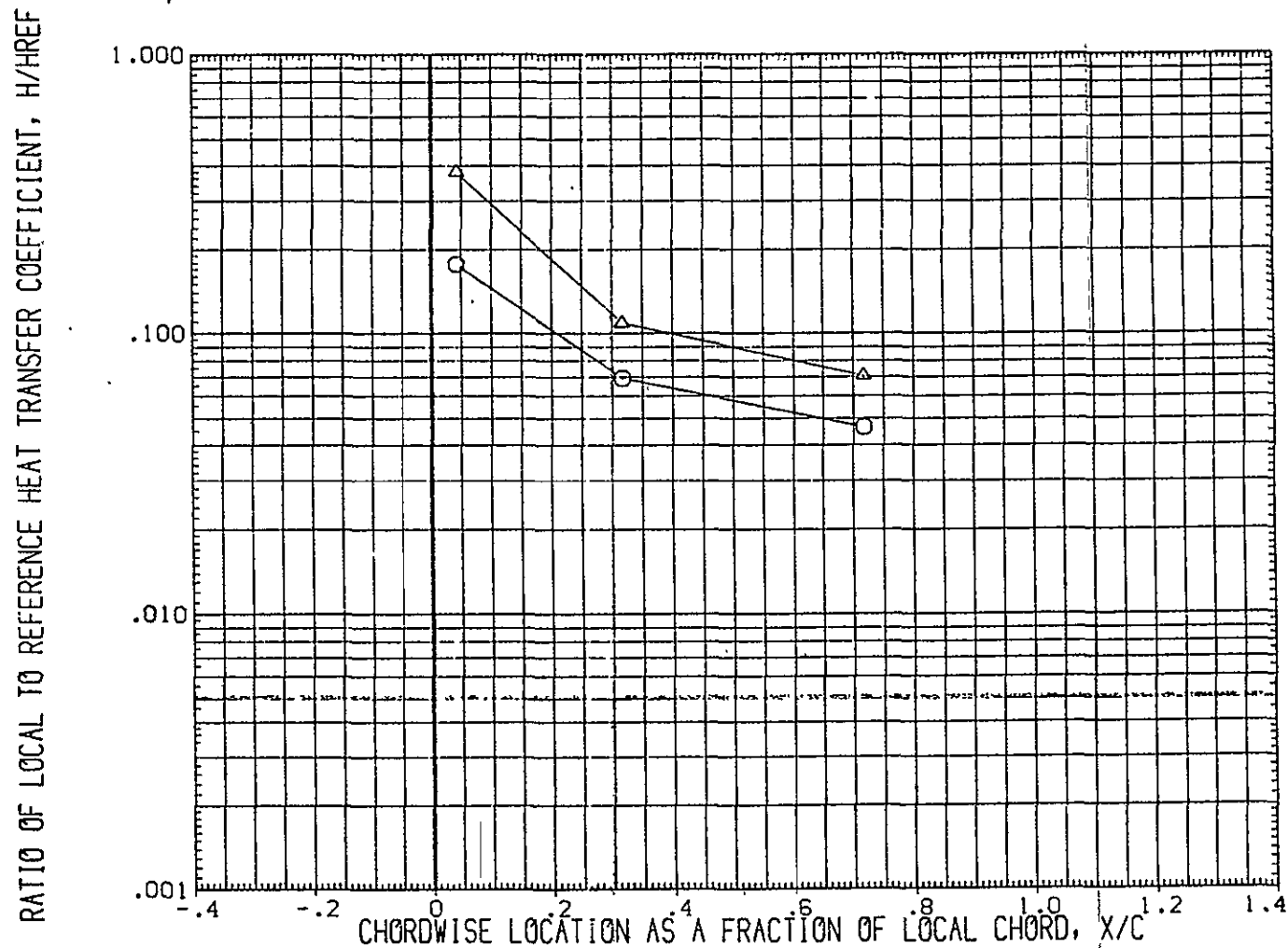


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.040 HAW/HT = .850 $2Y/B$ = .750

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

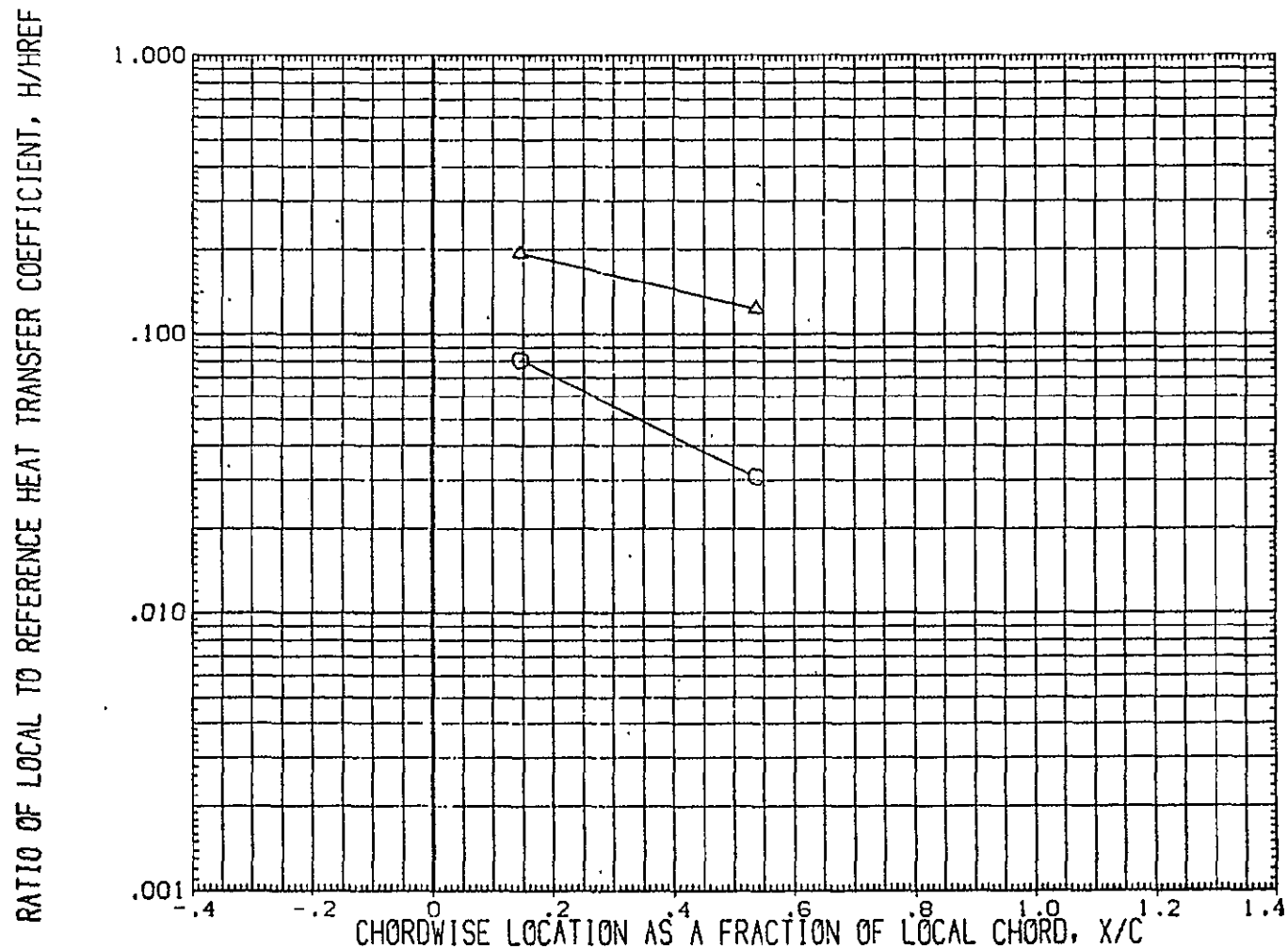


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L1

MACH = 16.040 HAW/HT= .850 2Y/B = .950

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CH12/1421 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	CH12/1421 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

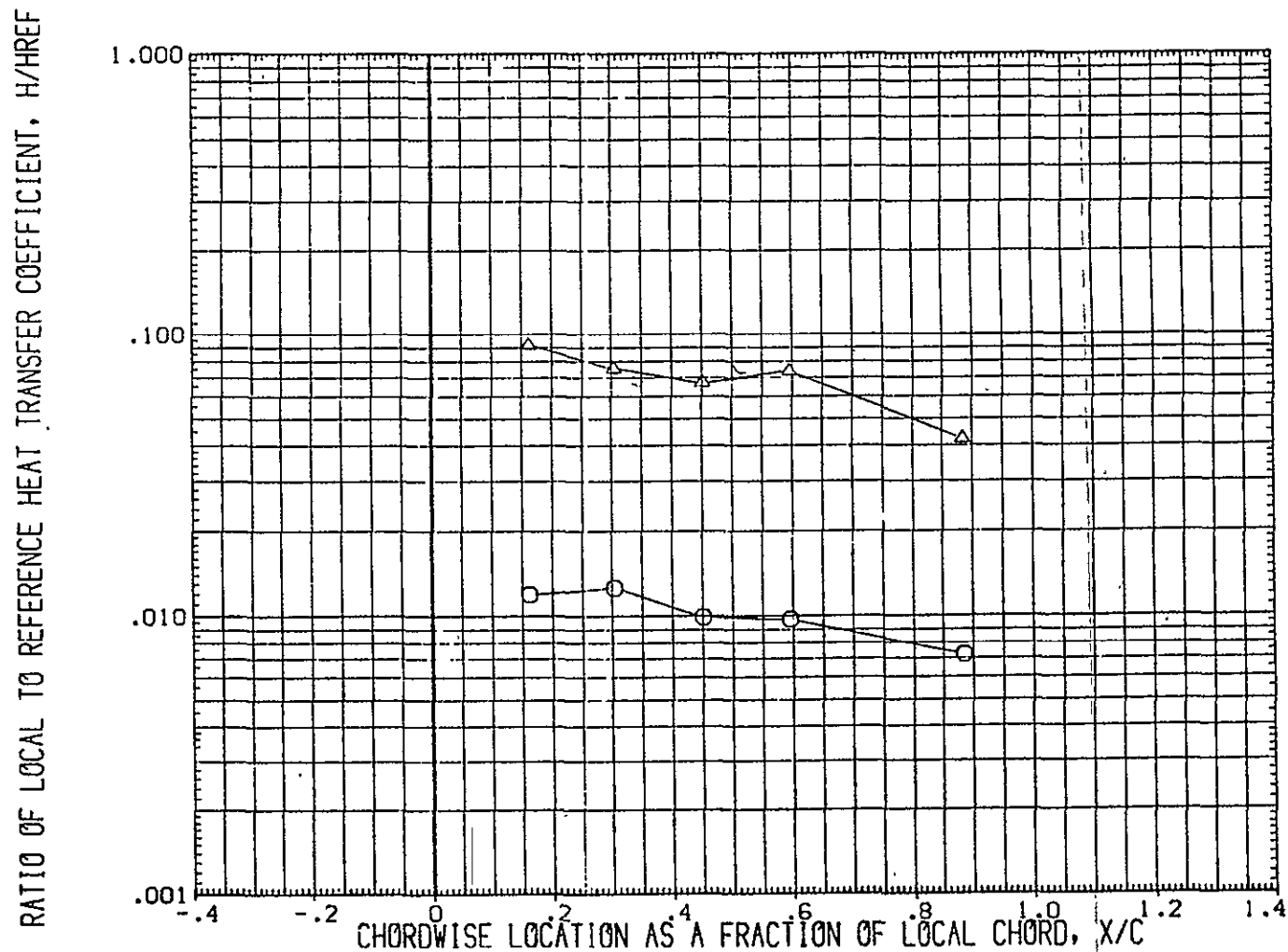


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
 $MACH = 16.040$ $HAW/HT = .900$ $2Y/B = .250$ PAGE 460

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

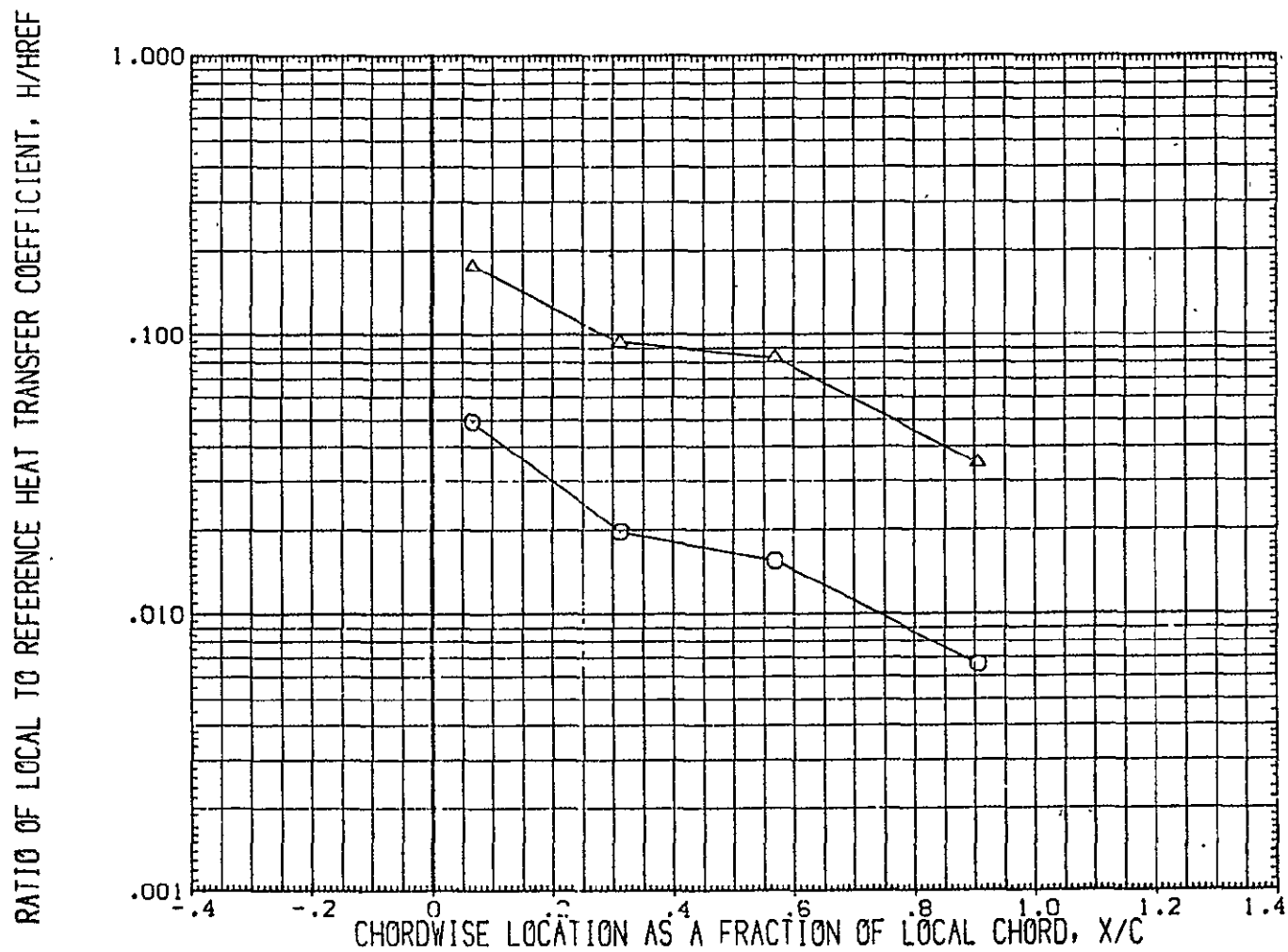


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/LI

MACH = 16.040 HAW/HT = .900 $2Y/B$ = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG#07)	CH12/1421 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUG#08)	DATA NOT AVAILABLE	5.000	.000
(RUG#09)	DATA NOT AVAILABLE	10.000	.000
(RUG#10)	CH12/1421 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

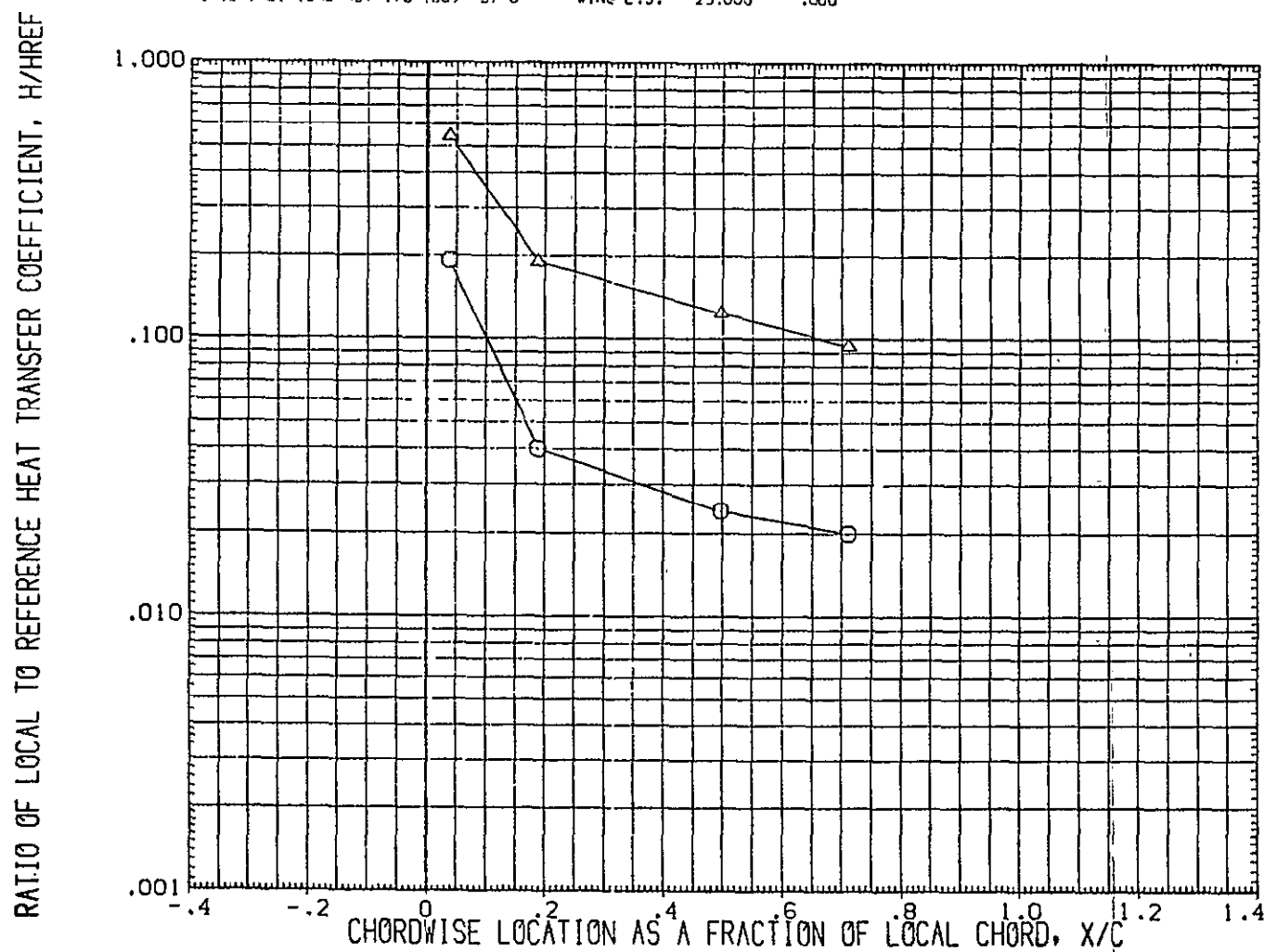


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 16.040 HAW/HT = .900 $2Y/B$ = .500 PAGE 462

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

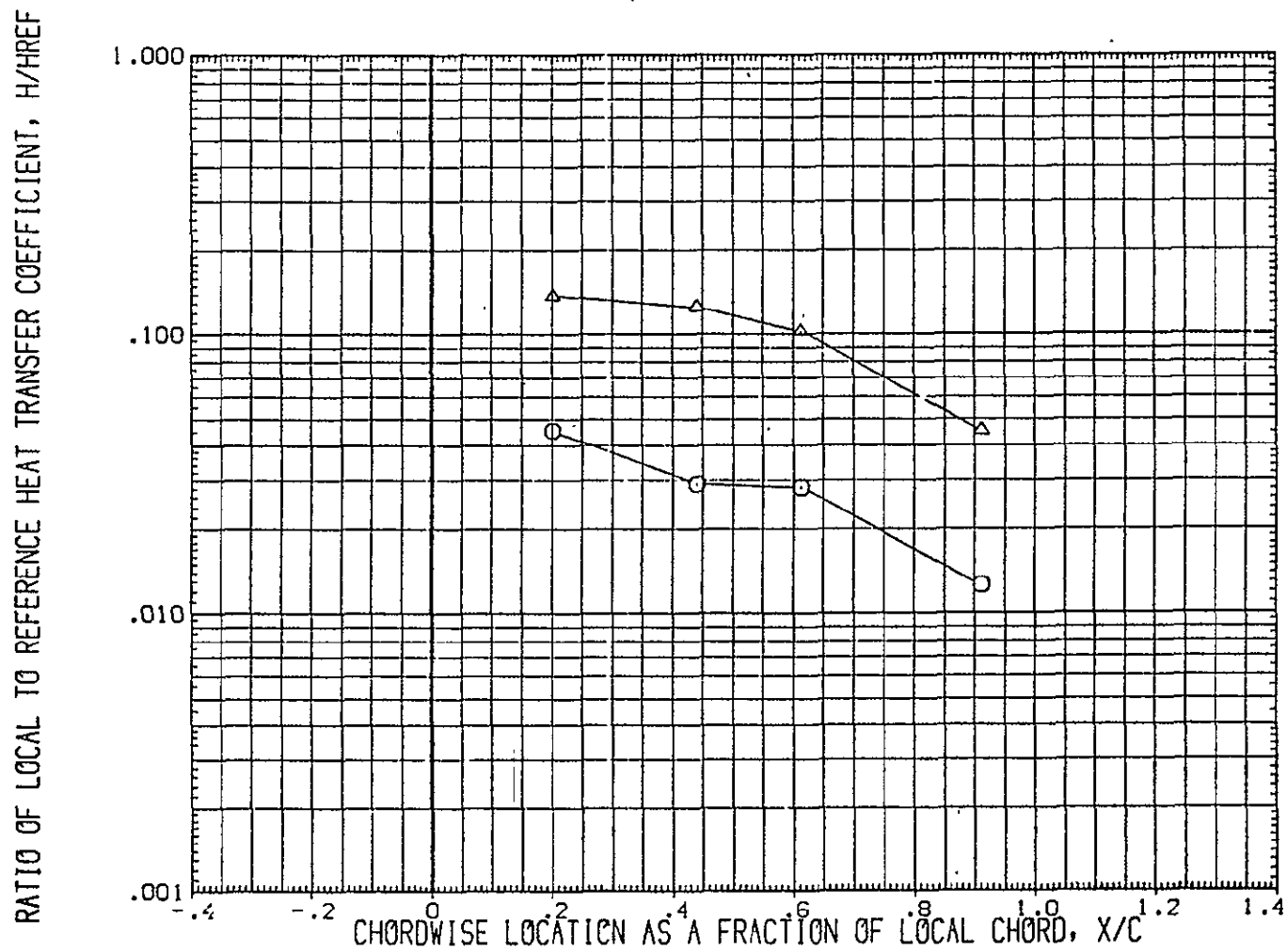


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.040 HAW/HT = .900 $2Y/B$ = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

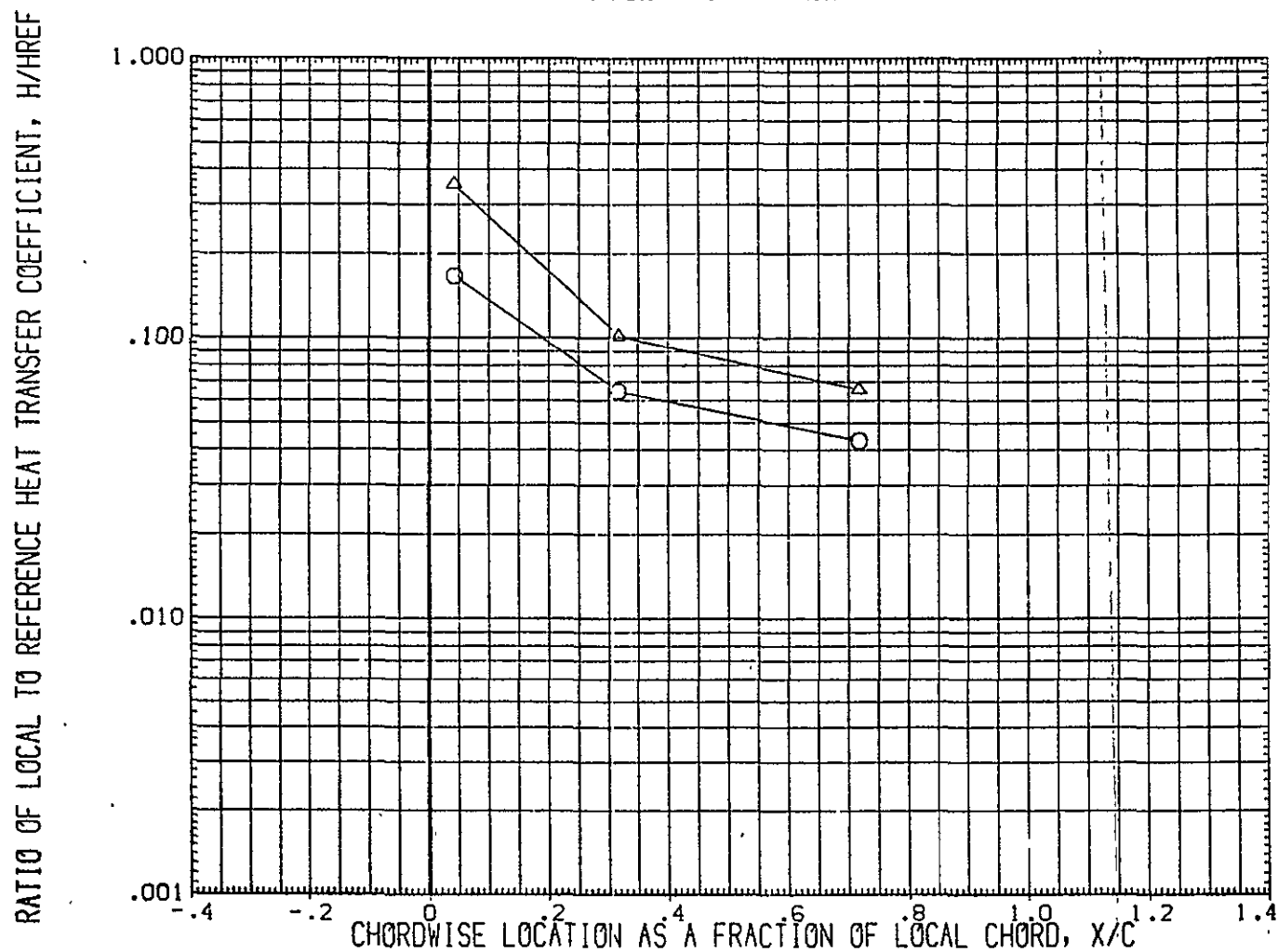


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.040 HAW/HT = .900 $2Y/B$ = .750

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

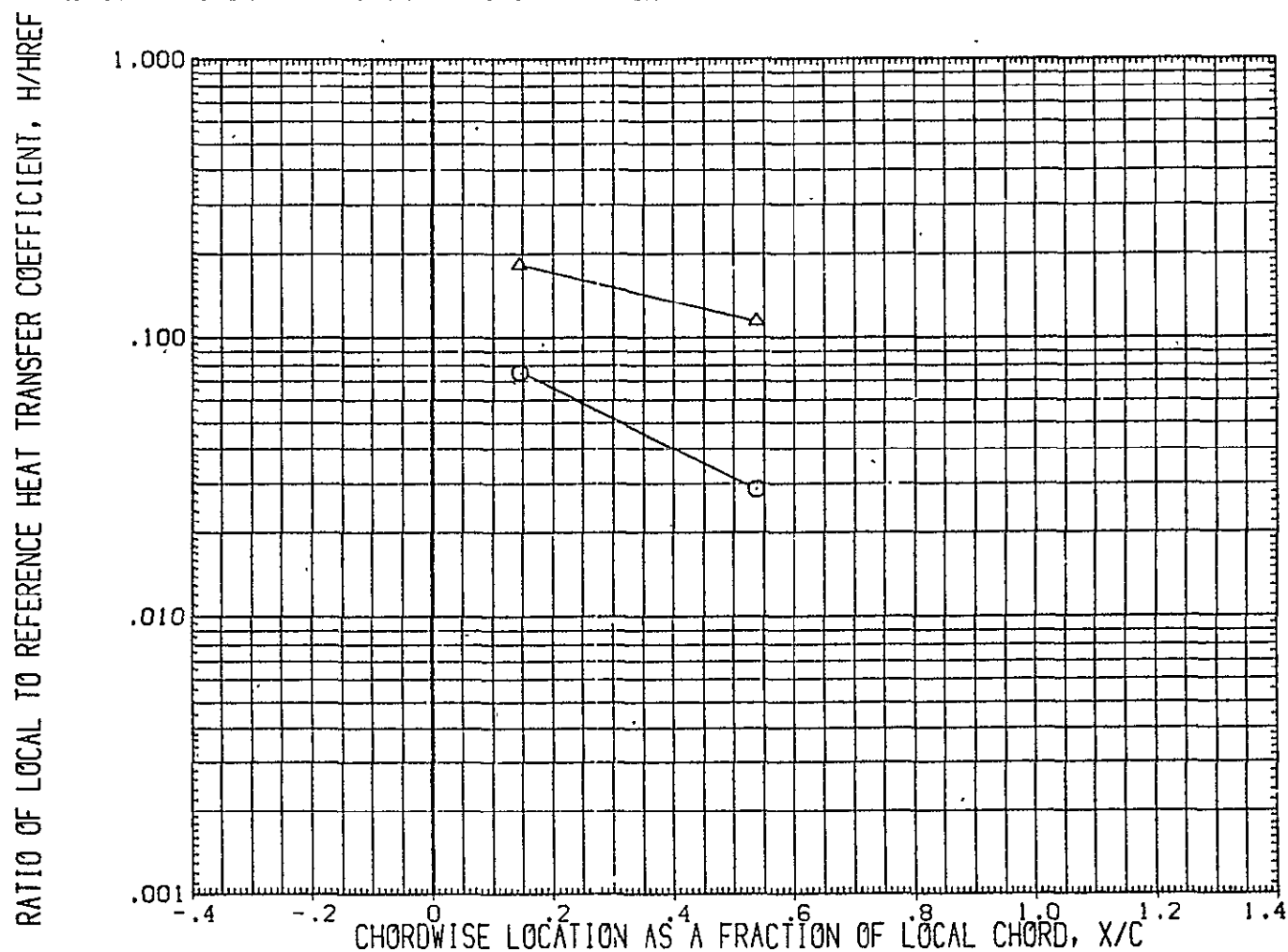


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.040 HAW/HT = .900 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

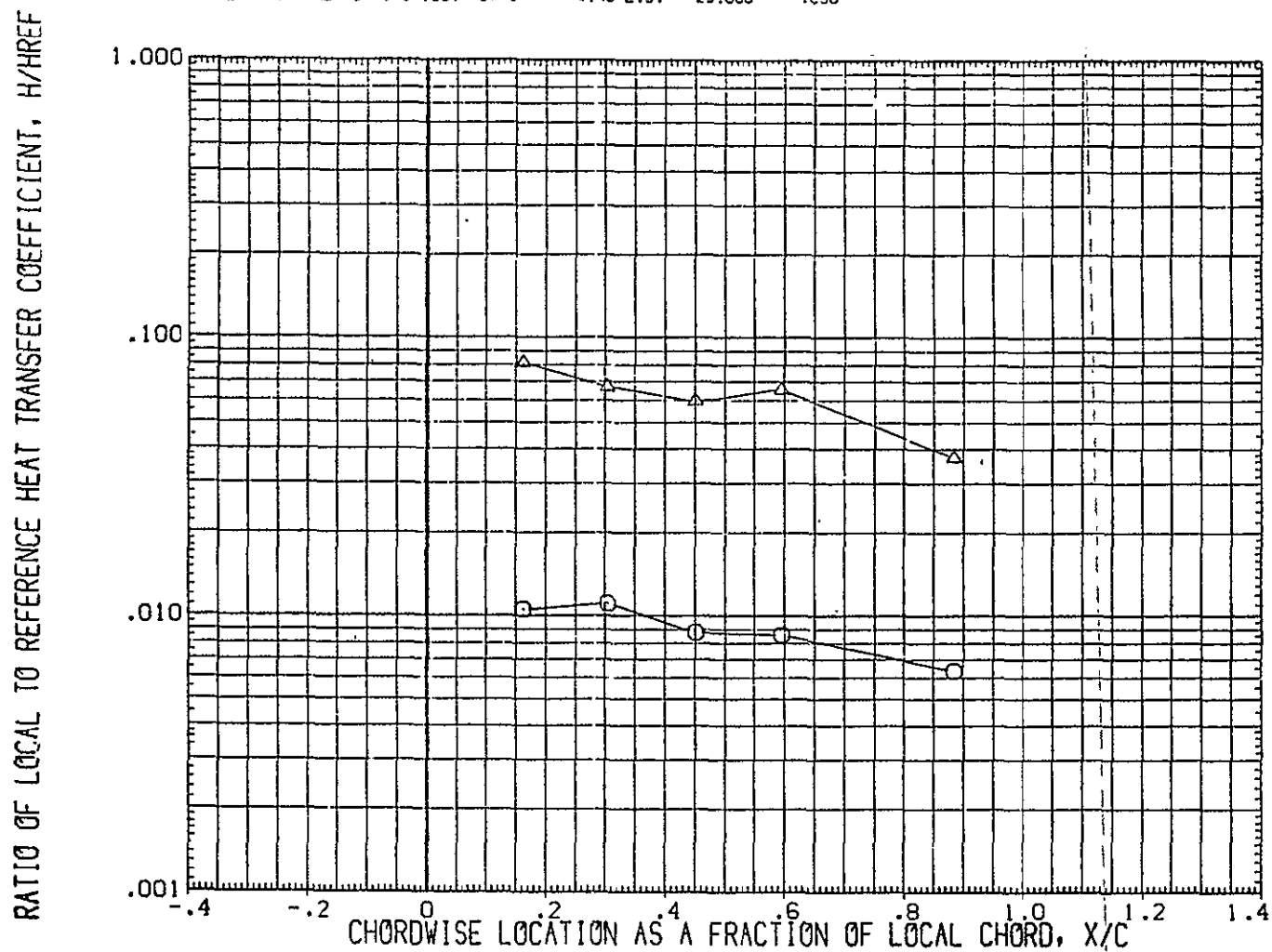


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 16.040 HAW/HT = 1.000 $2Y/B = .250$ PAGE 466

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

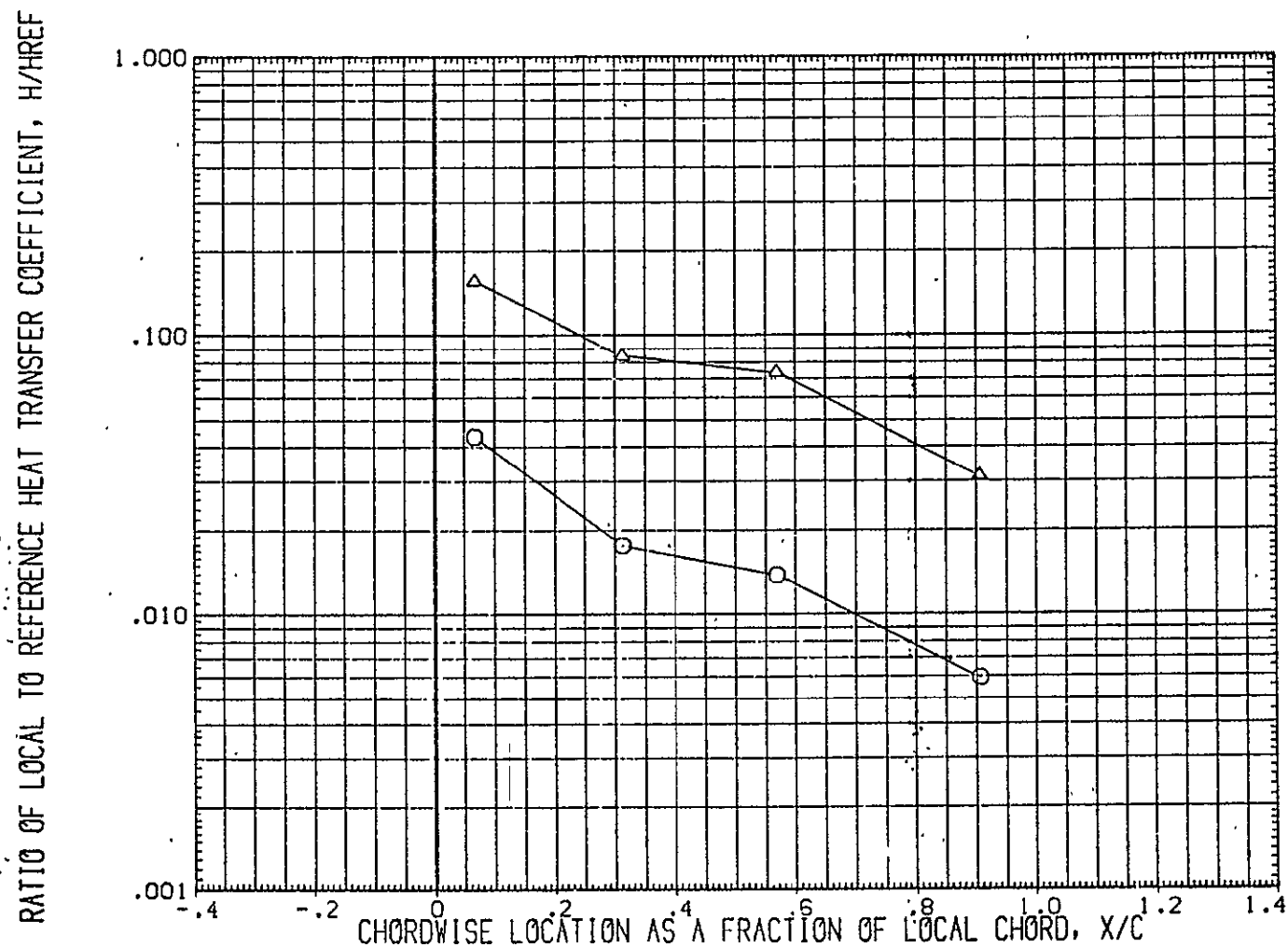


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.040 HAW/HT= 1.000 $2Y/B = .400$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(PUGW08)	DATA NOT AVAILABLE	5.000	.000
(PUGW09)	DATA NOT AVAILABLE	10.000	.000
(PUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

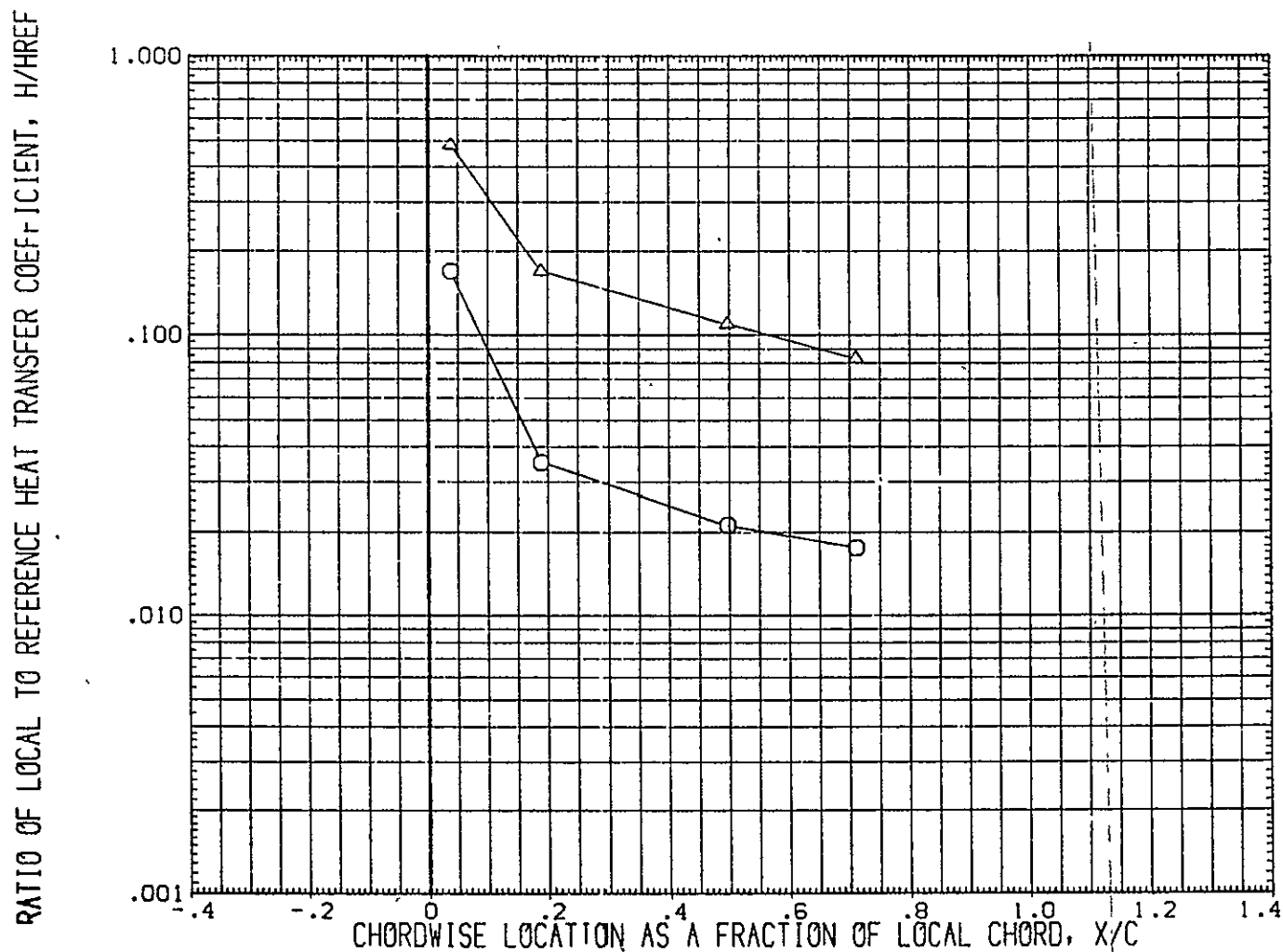


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 16.040 HAW/HT= 1.000 $2Y/B = .500$ PAGE 468

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
[RUGV07]	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
[RUGV08]	DATA NOT AVAILABLE	5.000	.000
[RUGV09]	DATA NOT AVAILABLE	10.000	.000
[RUGV10]	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

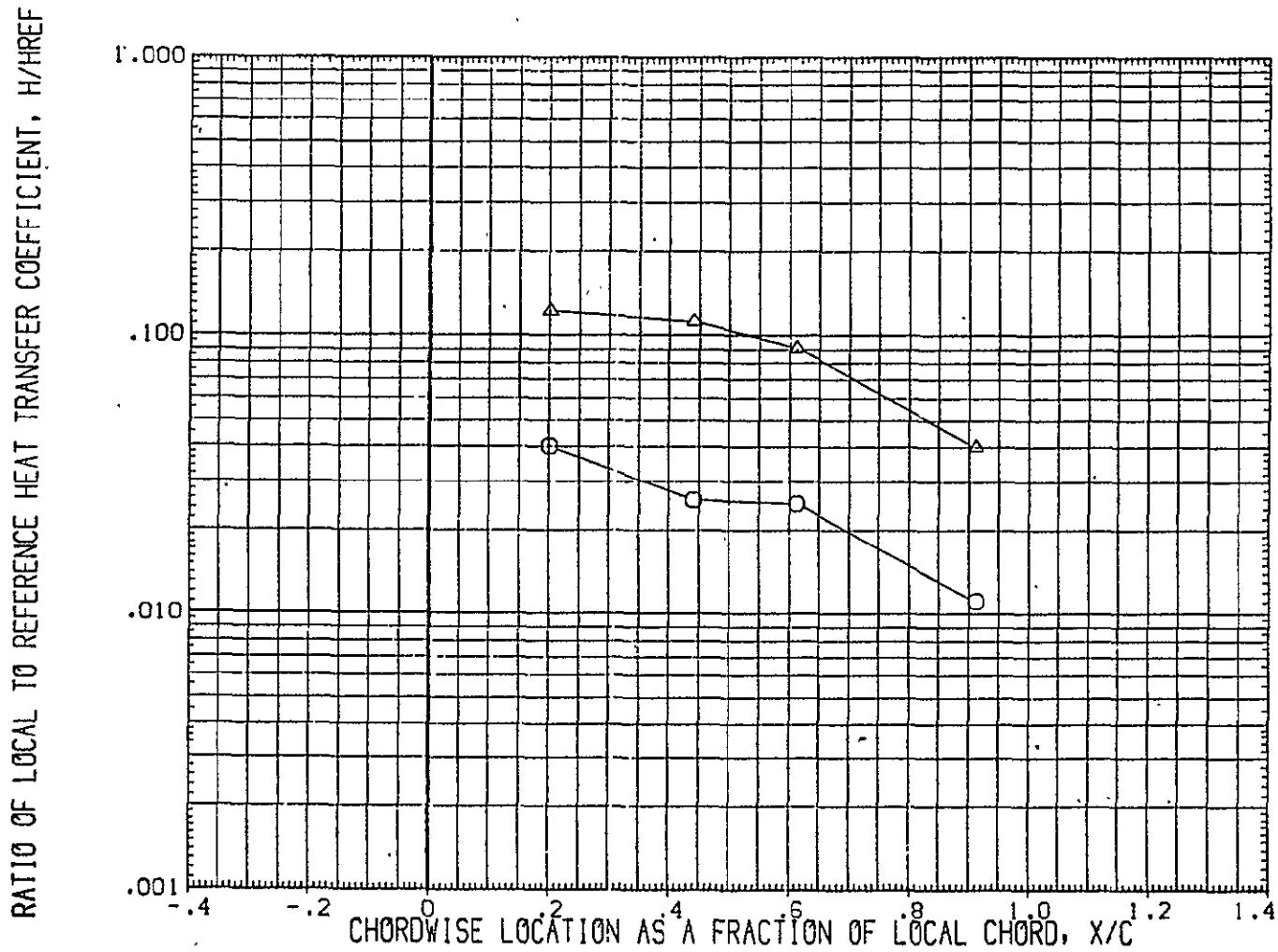


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.040 HAW/HT = 1.000 $2Y/B$ = .600

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CH12/1H21 (CAL HST 173-100) 37 D WING L.S.	.000	.030
(RUGW08)	DATA NOT AVAILABLE	5.000	.030
(RUGW09)	DATA NOT AVAILABLE	10.000	.030
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 D WING L.S.	25.000	.030

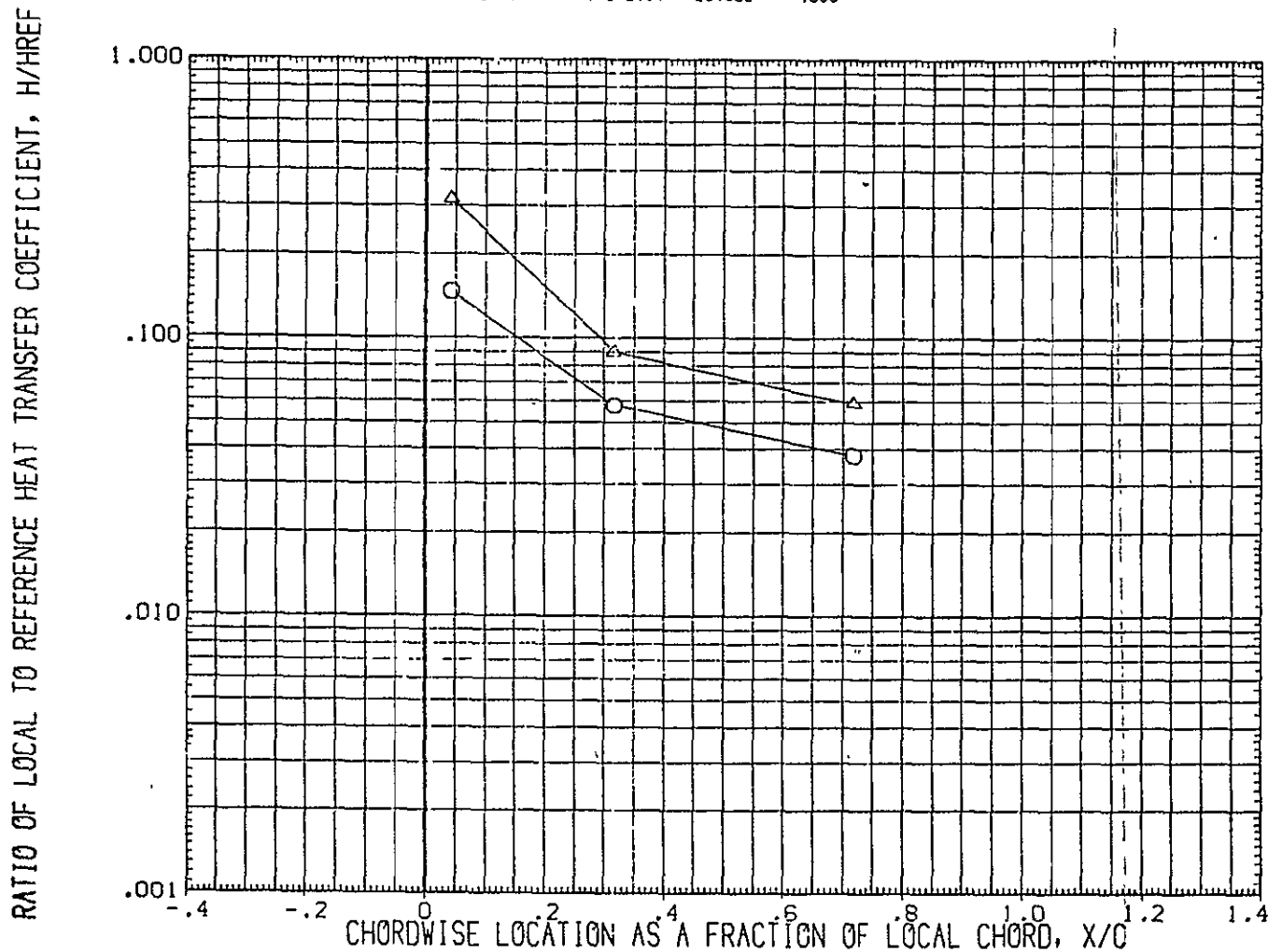


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L1
MACH = 16.040 HAW/HT = 1.000 2Y/B = .750 PAGE 470

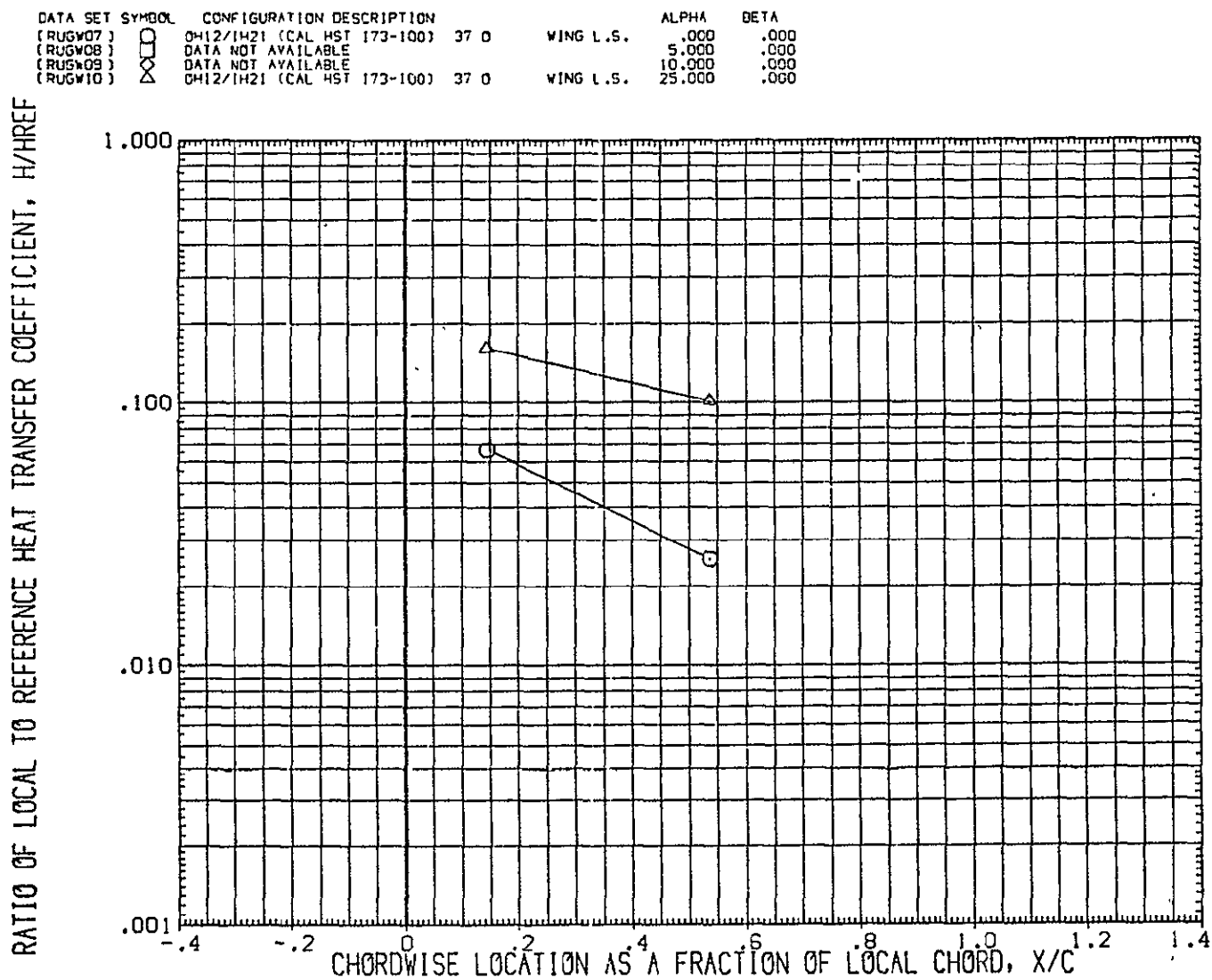


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 16.040 HAW/HT = 1.000 $2Y/B = .950$ PAGE 471

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUSW07)	CH12/1421 (CAL HST 173-100) 37 0 WING L.S.	.030	.030
(RUSW08)	DATA NOT AVAILABLE	5.000	.030
(RUSW09)	CH12/1421 (CAL HST 173-100) 37 0 WING L.S.	10.000	.030
(RUSW10)	DATA NOT AVAILABLE	25.000	.030

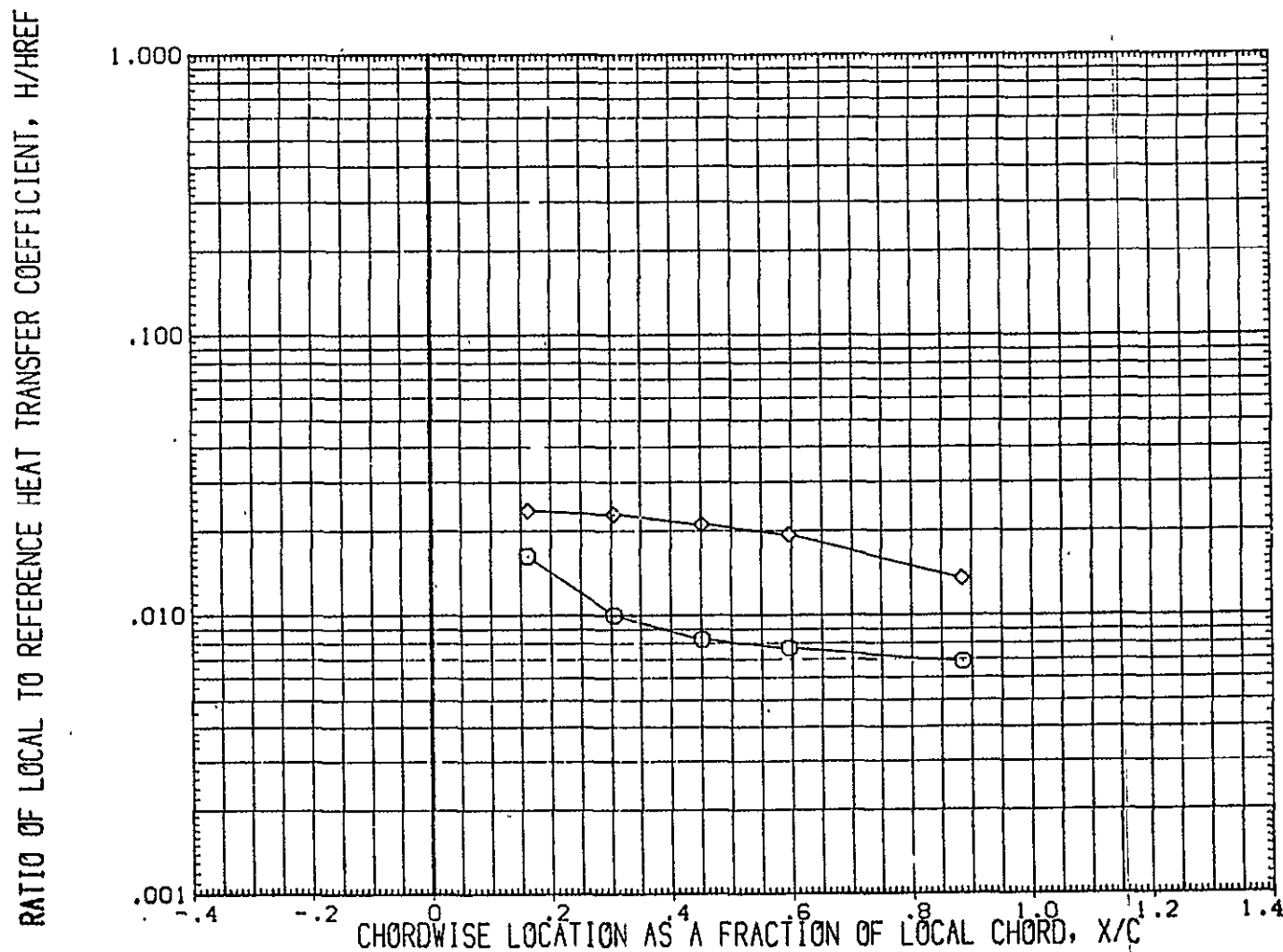


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = .850 $2Y/B$ = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	10.000	.000
(RUGW10)	DATA NOT AVAILABLE	25.000	.000

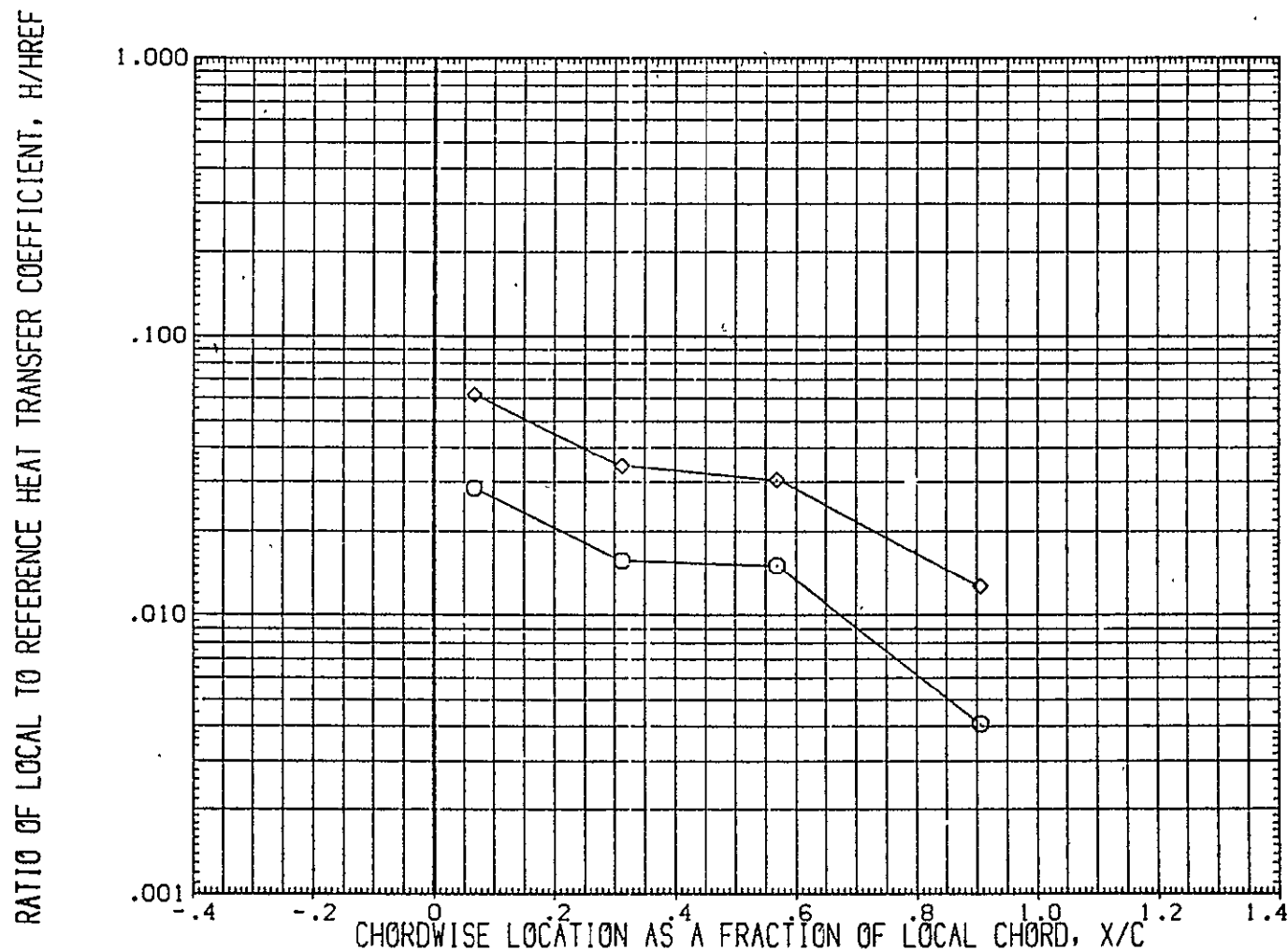


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = .850 $2Y/B$ = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	CH12/1H21 (CAL HST 173-100) 37 ° WING L.S.	.000	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	CH12/1H21 (CAL HST 173-100) 37 ° WING L.S.	10.000	.000
(RUGV10)	DATA NOT AVAILABLE	25.000	.000

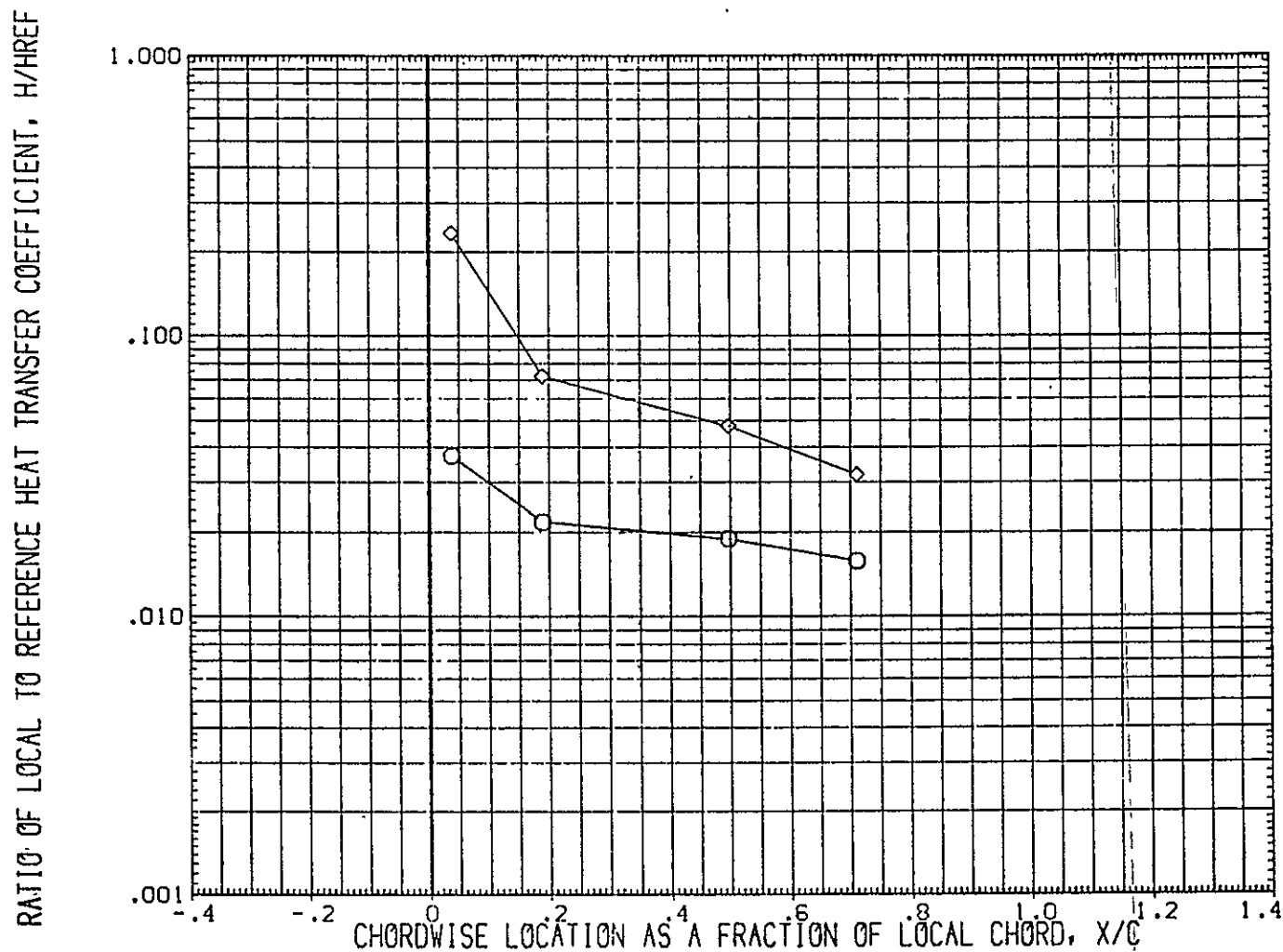


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = .850 $2Y/B$ = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
{RUGW07}	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
{RUGW08}	DATA NOT AVAILABLE	5.000	.000
{RUGW09}	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	10.000	.000
{RUGW10}	DATA NOT AVAILABLE	25.000	.000

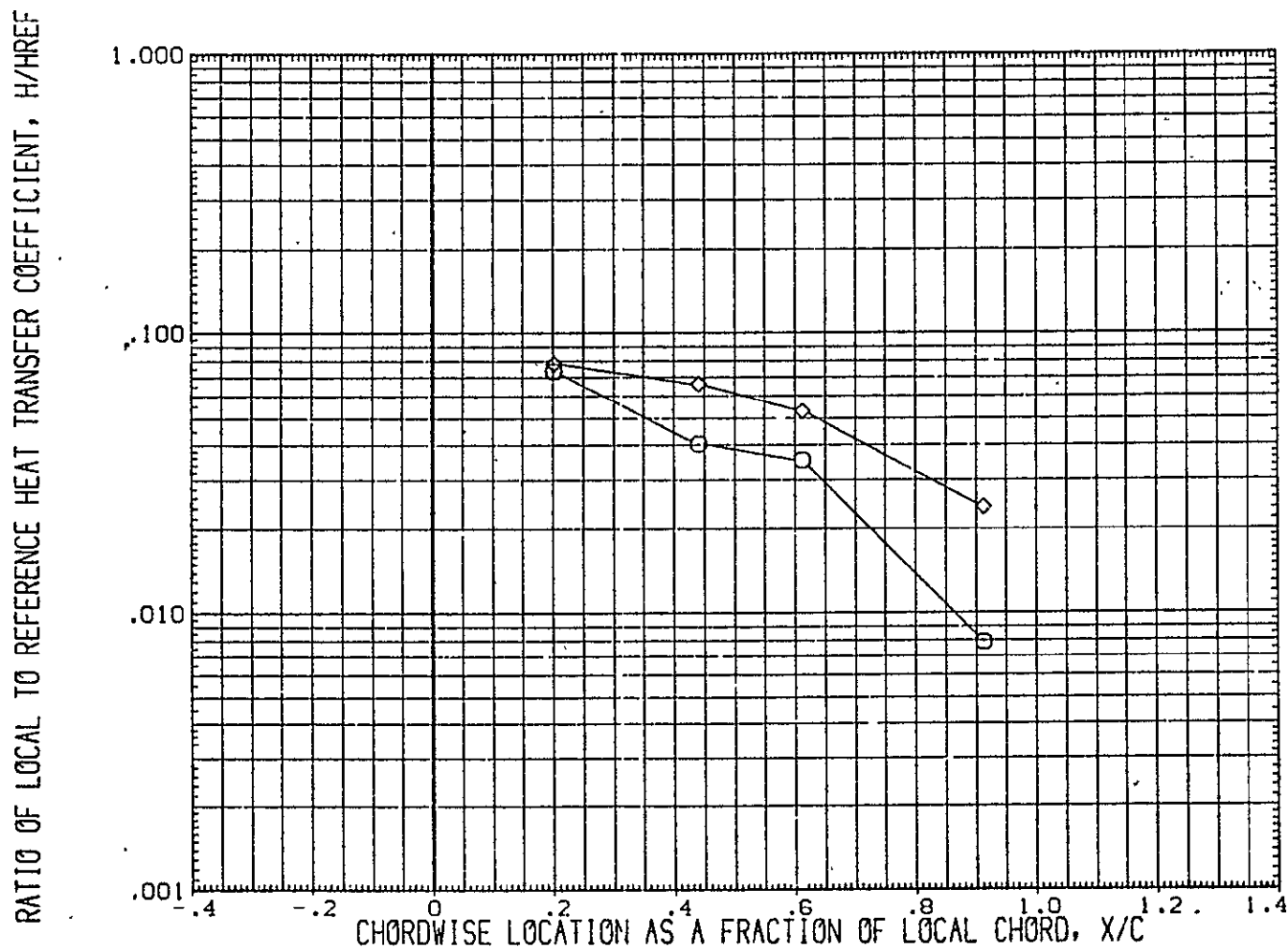


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = .850 $2Y/B$ = .600

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	○	0412/1421 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	□	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	◇	0412/1421 (CAL HST 173-100) 37 0 WING L.S.	10.000	.000
(RUGW10)	△	DATA NOT AVAILABLE	25.000	.000

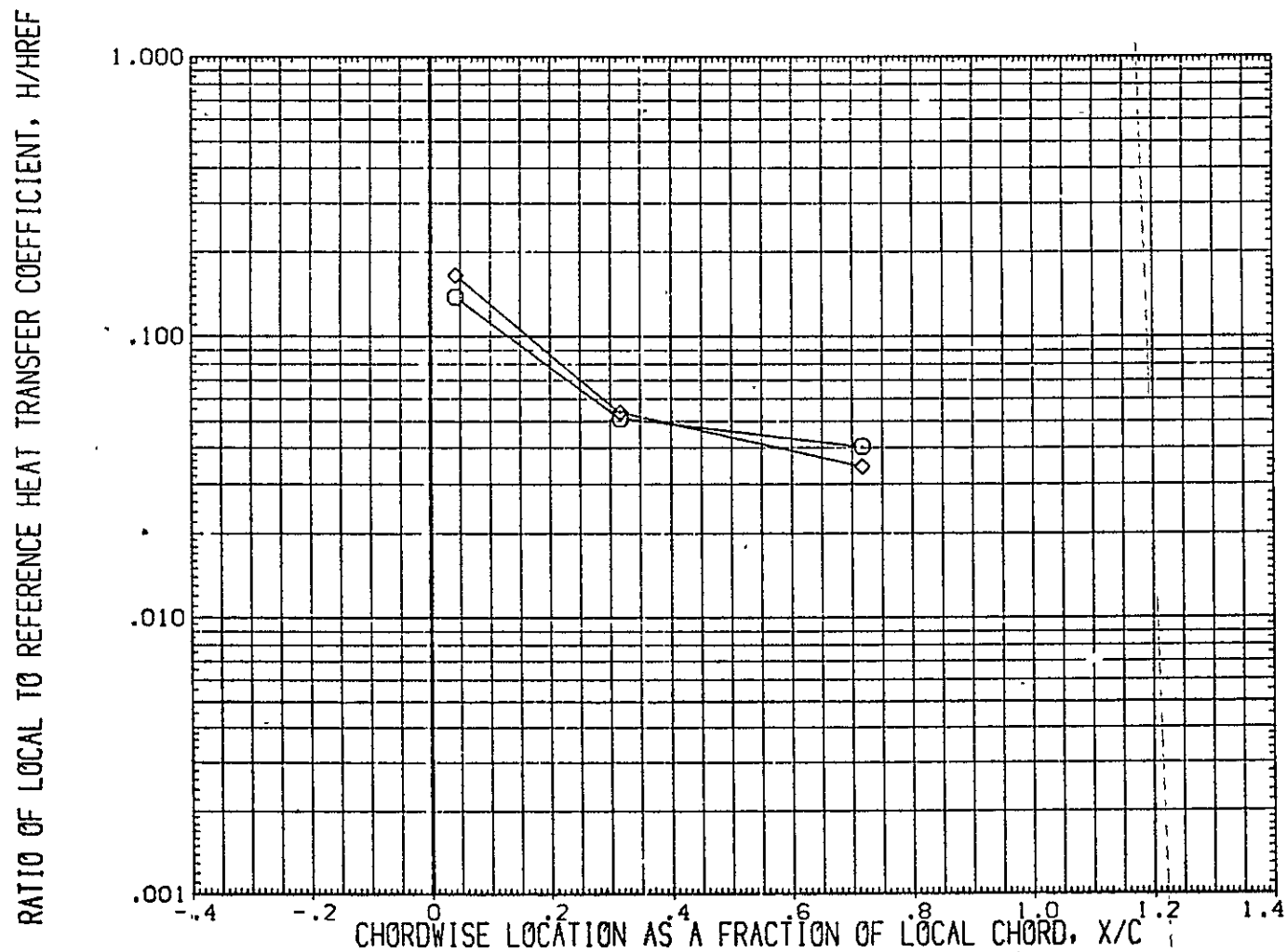


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = .850 $2Y/B$ = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	10.000	.000
(RUGW10)	DATA NOT AVAILABLE	25.000	.000

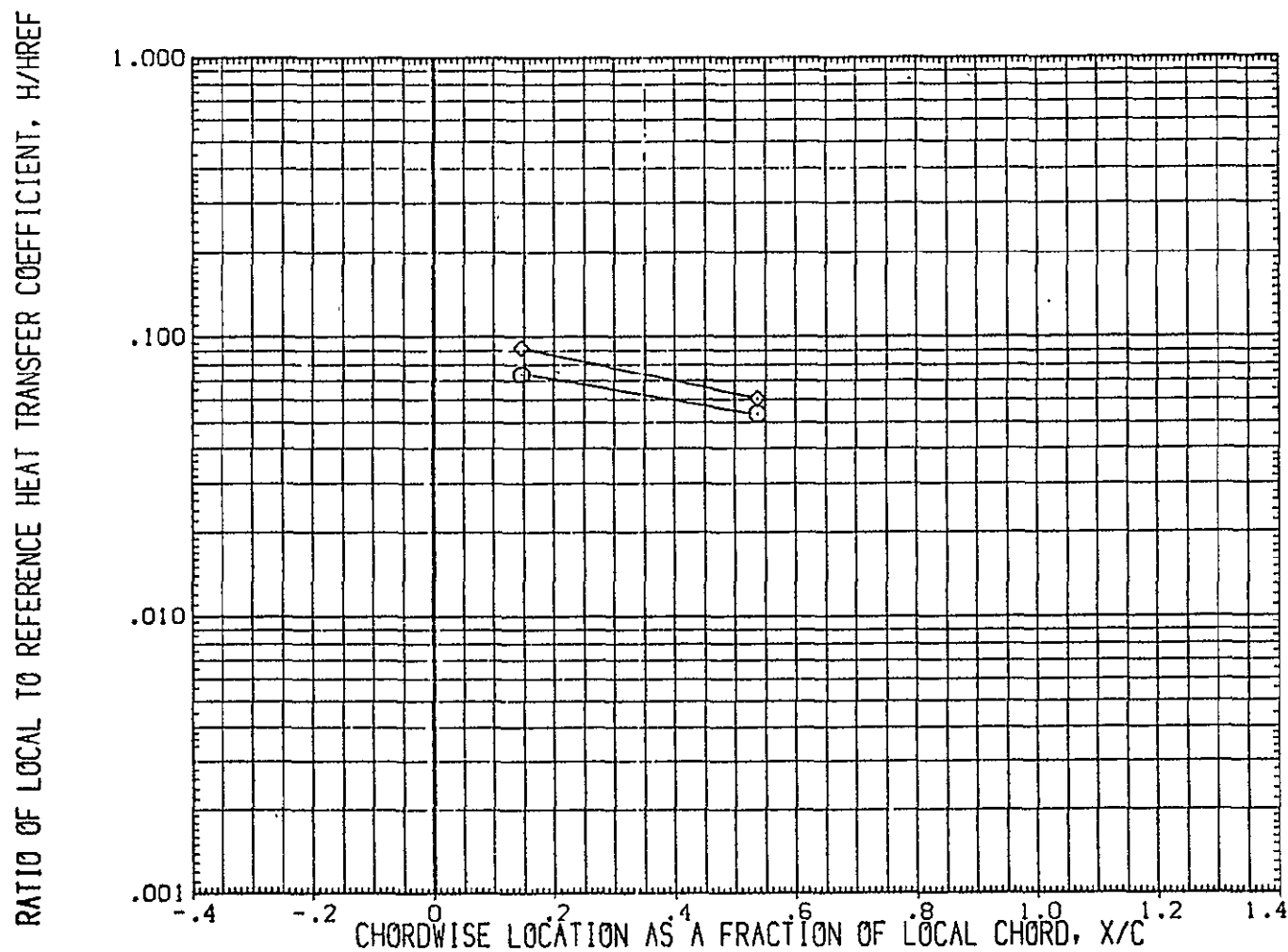


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = .850 2Y/B = .350

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	10.000	.000
(RUGW10)	DATA NOT AVAILABLE	25.000	.000

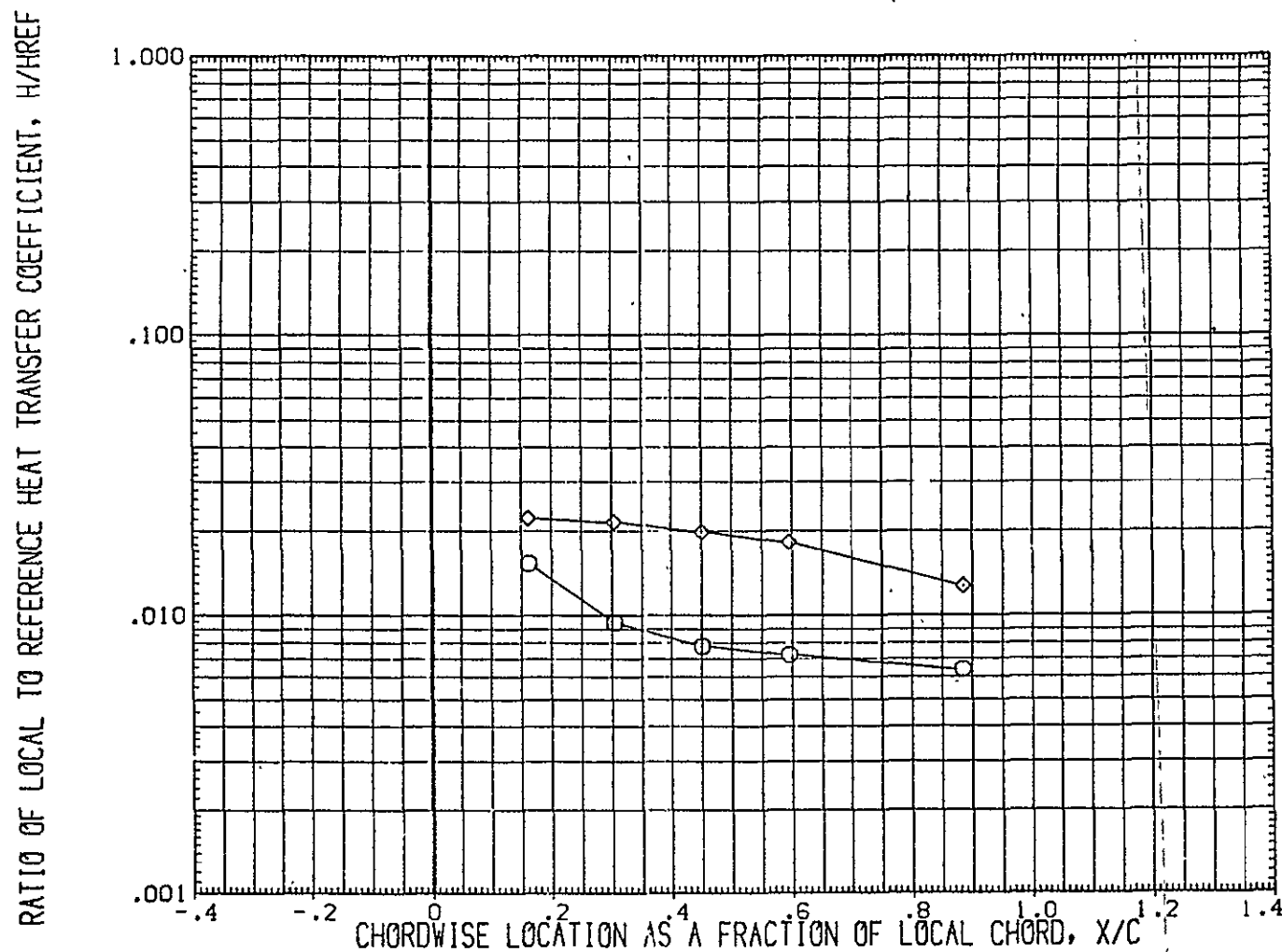


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L1

MACH = 18.330 HAW/HT = .900 2Y/B = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WING L.S.	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE		5.000	.000
(RUGW09)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	10.000	.000
(RUGW10)	DATA NOT AVAILABLE		25.000	.000

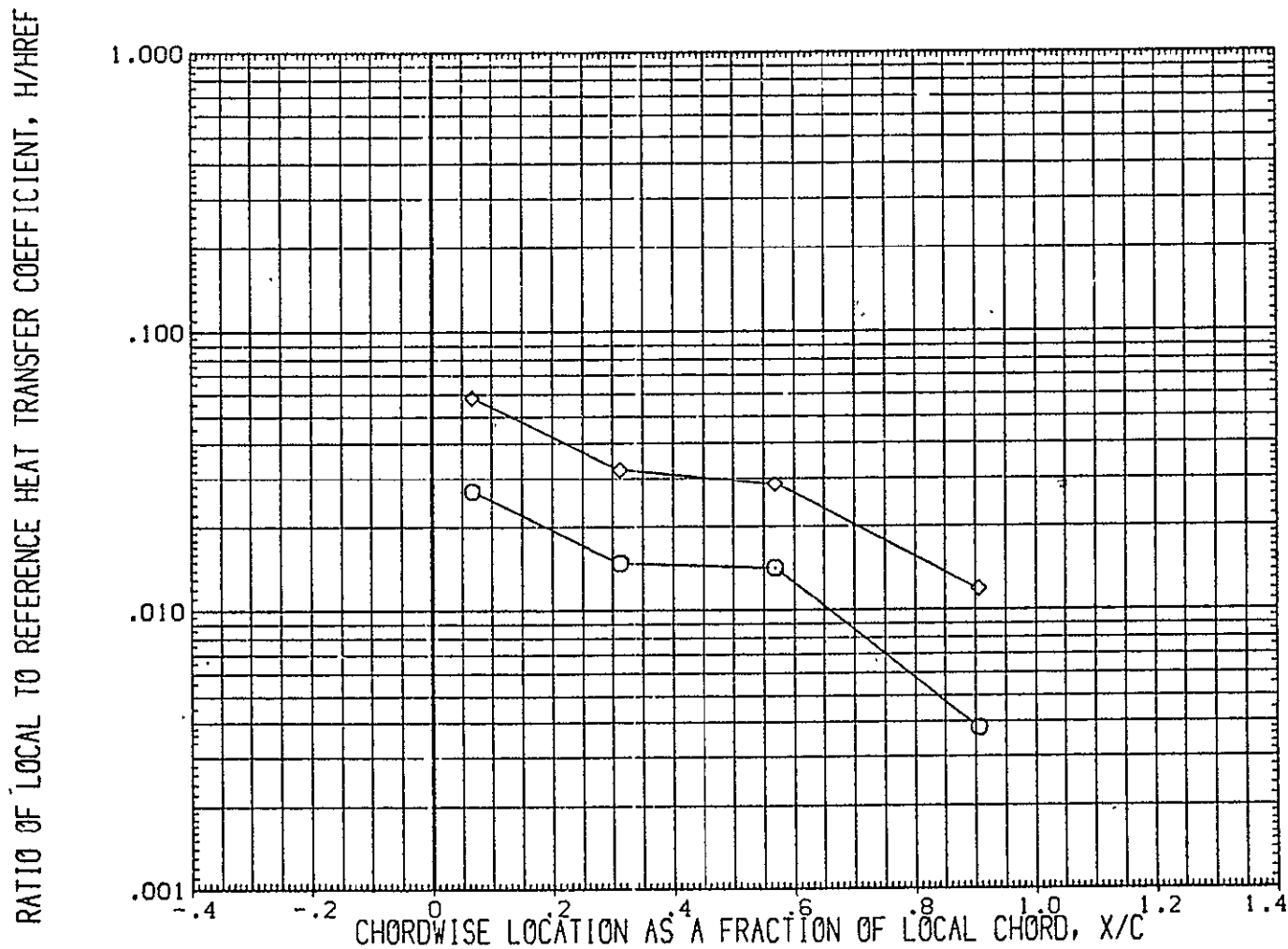


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = .900 $2Y/B$ = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	CH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	10.000	.000
(RUGW10)	DATA NOT AVAILABLE	25.000	.000

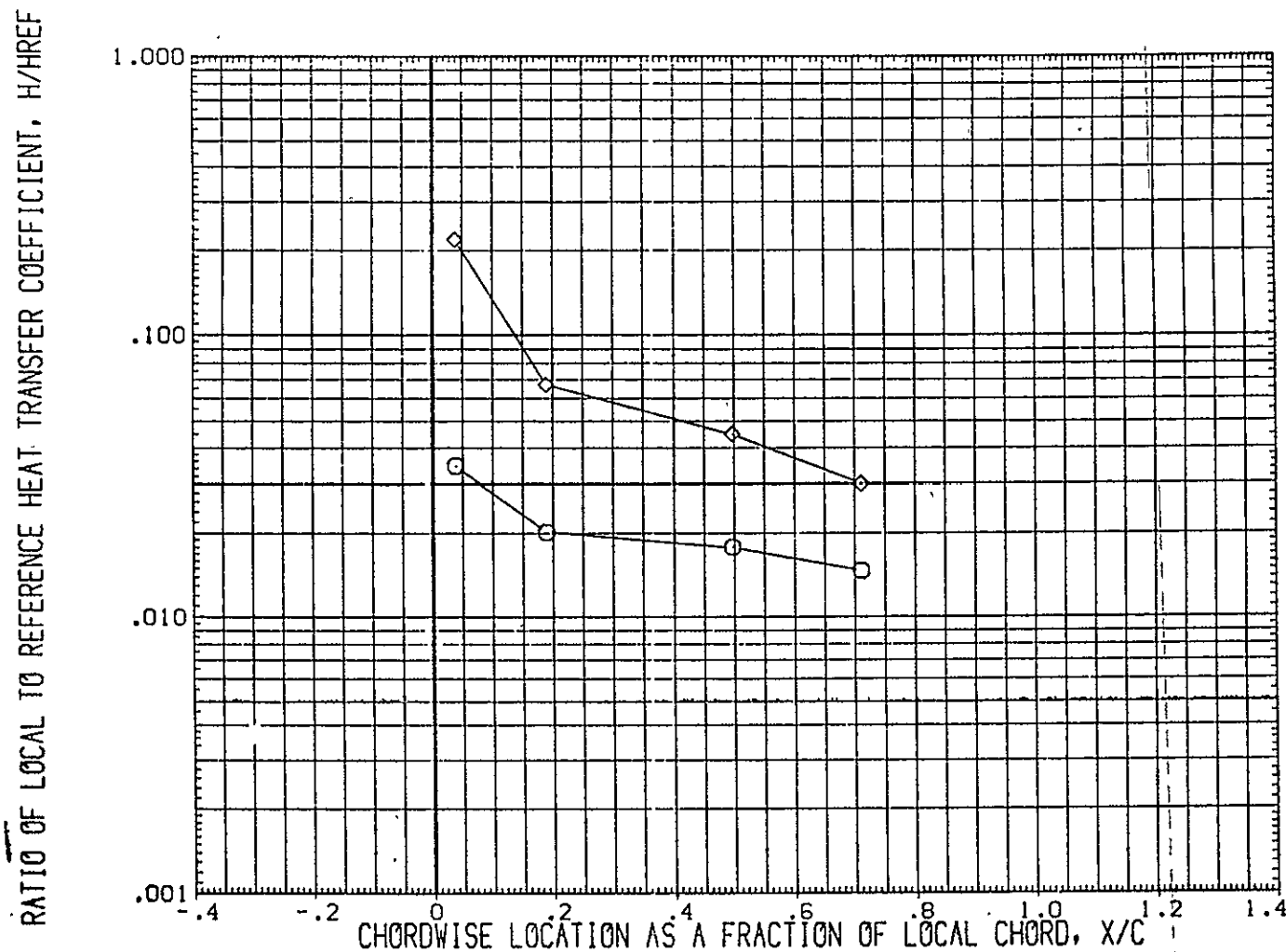


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/LI

MACH = 18.330 HAW/HT = .900 $2Y/B$ = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	10.000	.000
(RUGW10)	DATA NOT AVAILABLE	25.000	.000

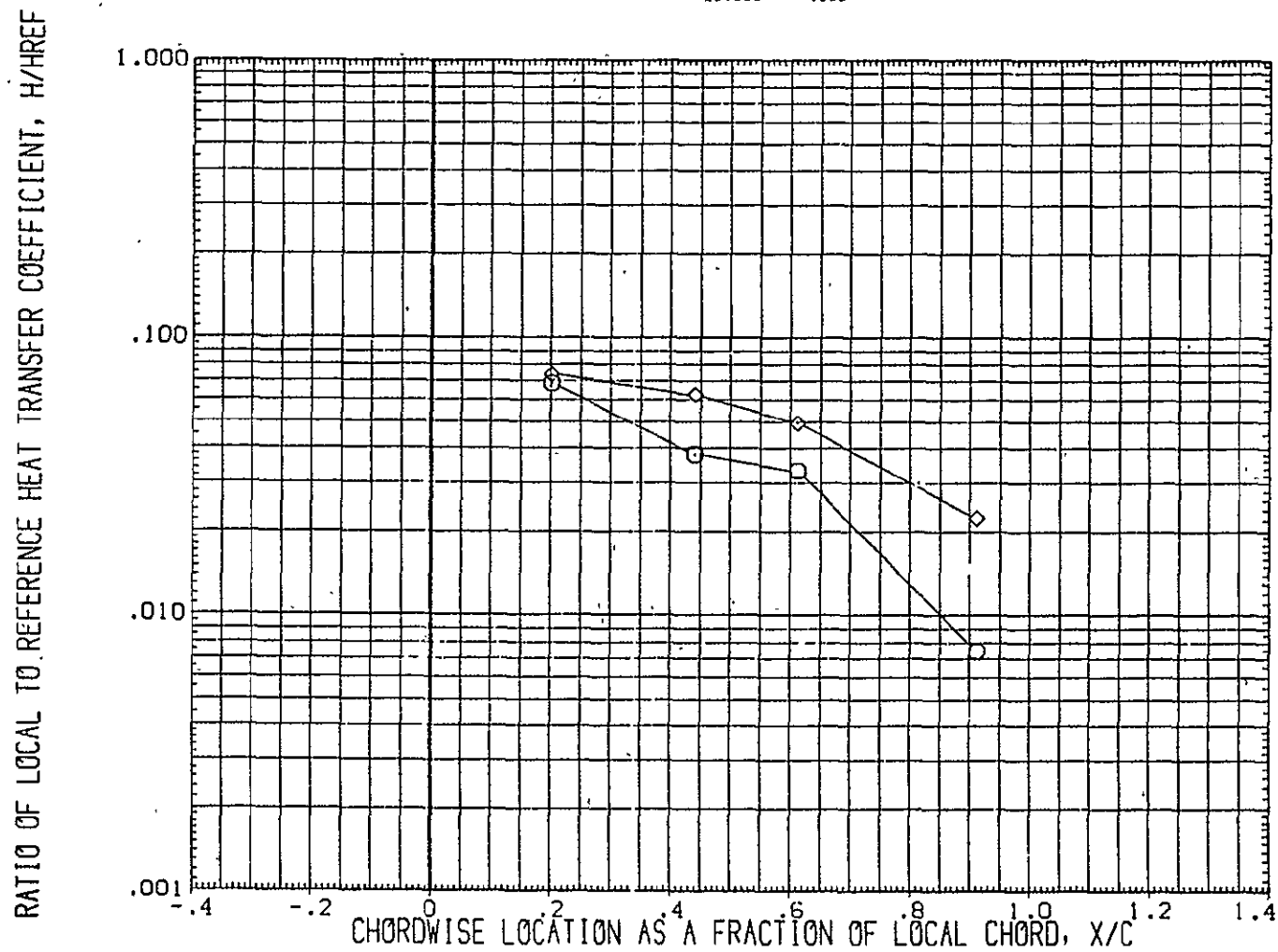


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 18.330 $H_{AW}/H_T = .900$ $2Y/B = .600$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGW07)	CH12/1421 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	CH12/1421 (CAL HST 173-100) 37 0 WING L.S.	10.000	.000
(RUGW10)	DATA NOT AVAILABLE	25.000	.000

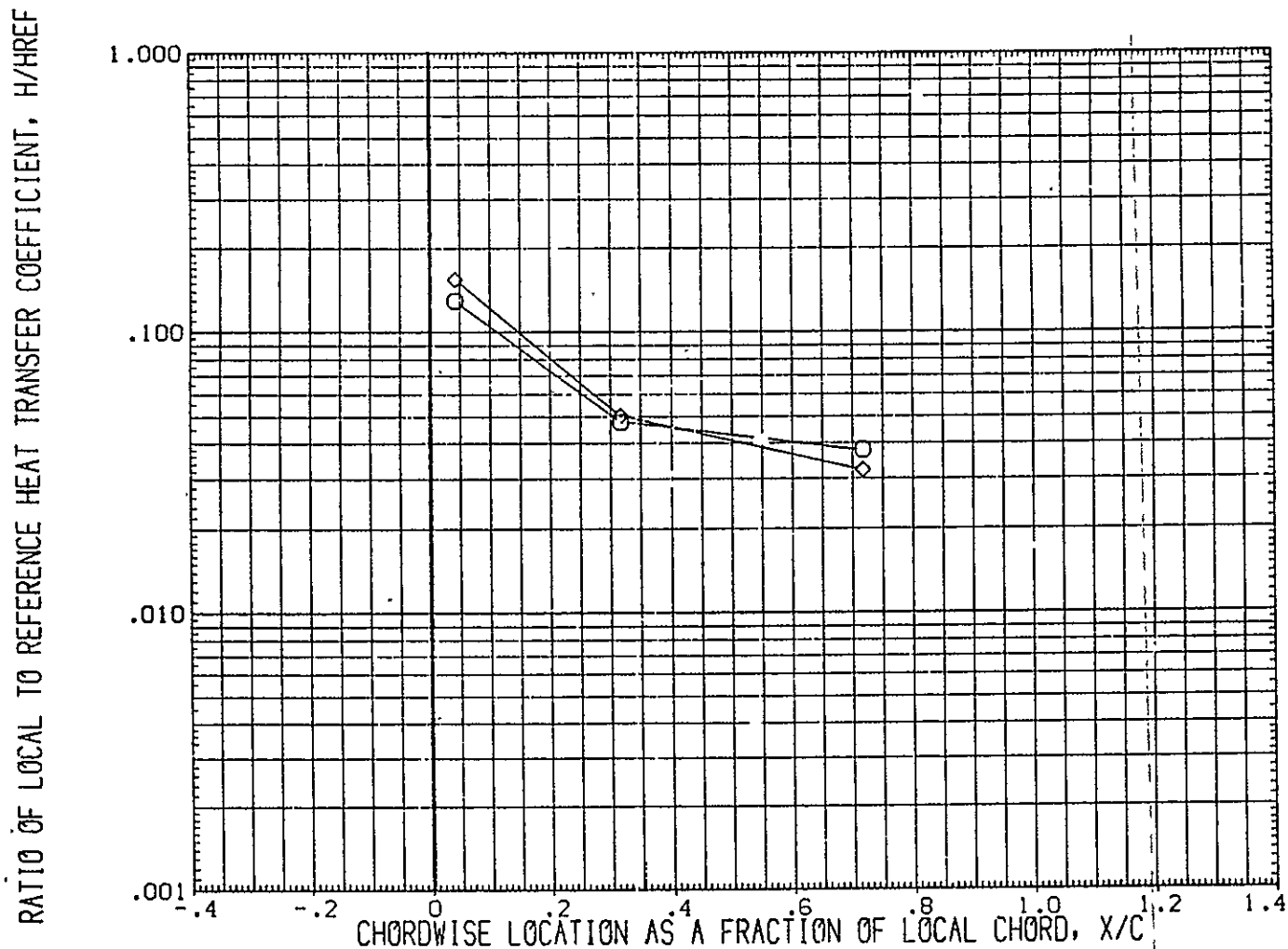


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 18.330 HAW/HT = .900 2Y/B = .750

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	10.000	.000
(RUGW10)	DATA NOT AVAILABLE	25.000	.000

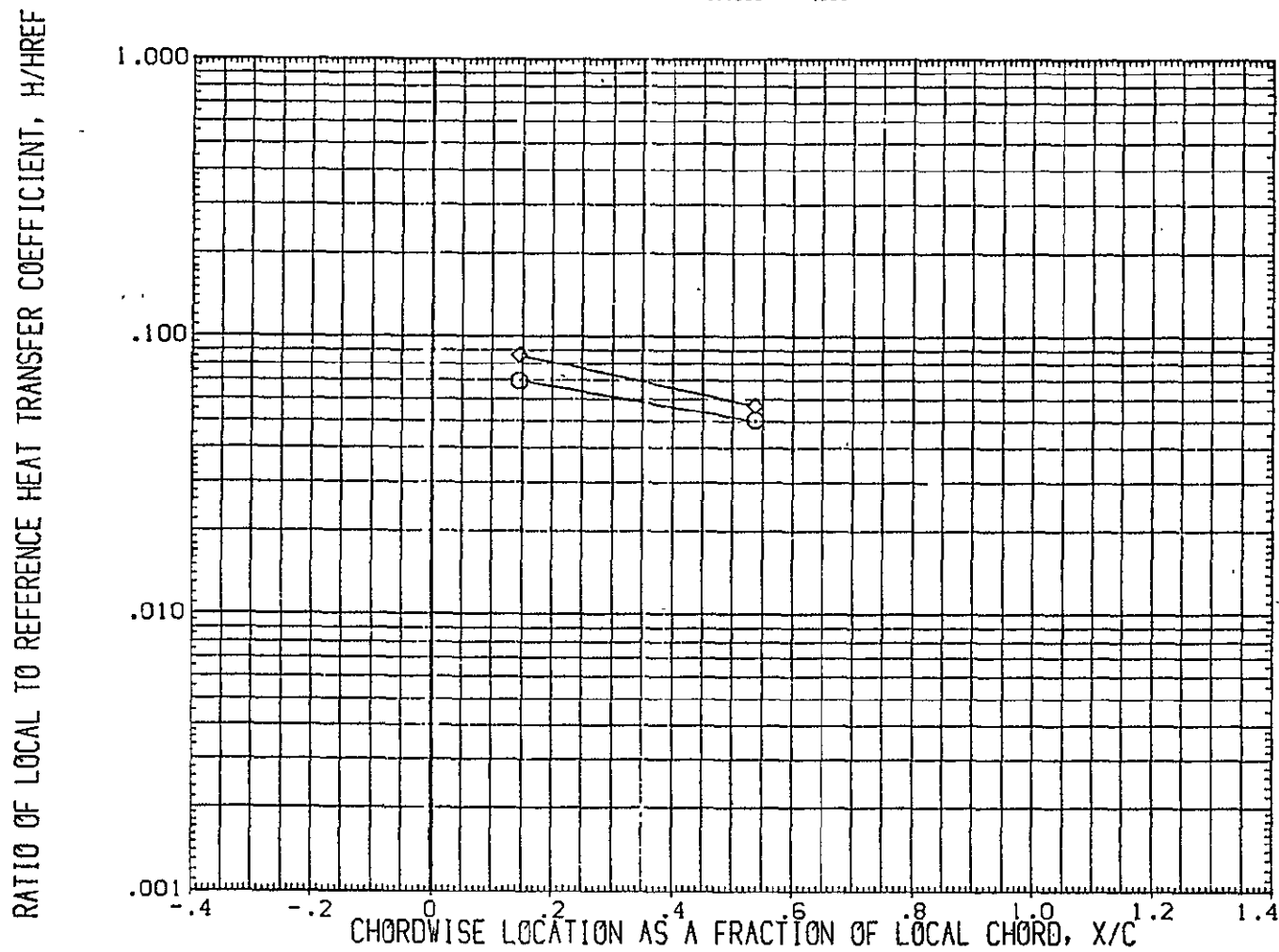


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = .900 $2Y/B$ = .950

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW09)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	10.000	.000
(RUGW10)	DATA NOT AVAILABLE	25.000	.000

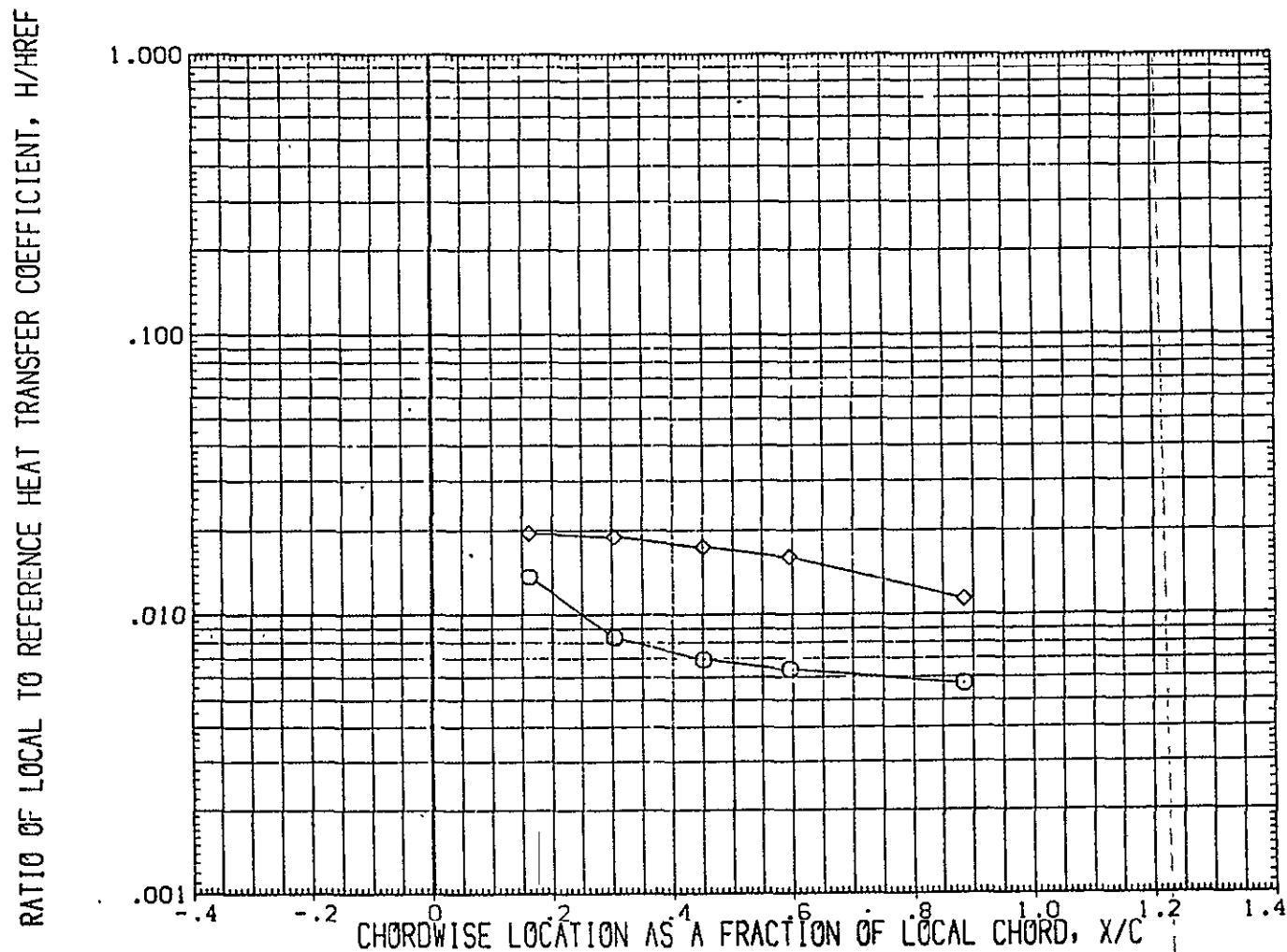


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = 1.000 $2Y/B = .250$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	10.000	.000
(RUGV10)	DATA NOT AVAILABLE	25.000	.000

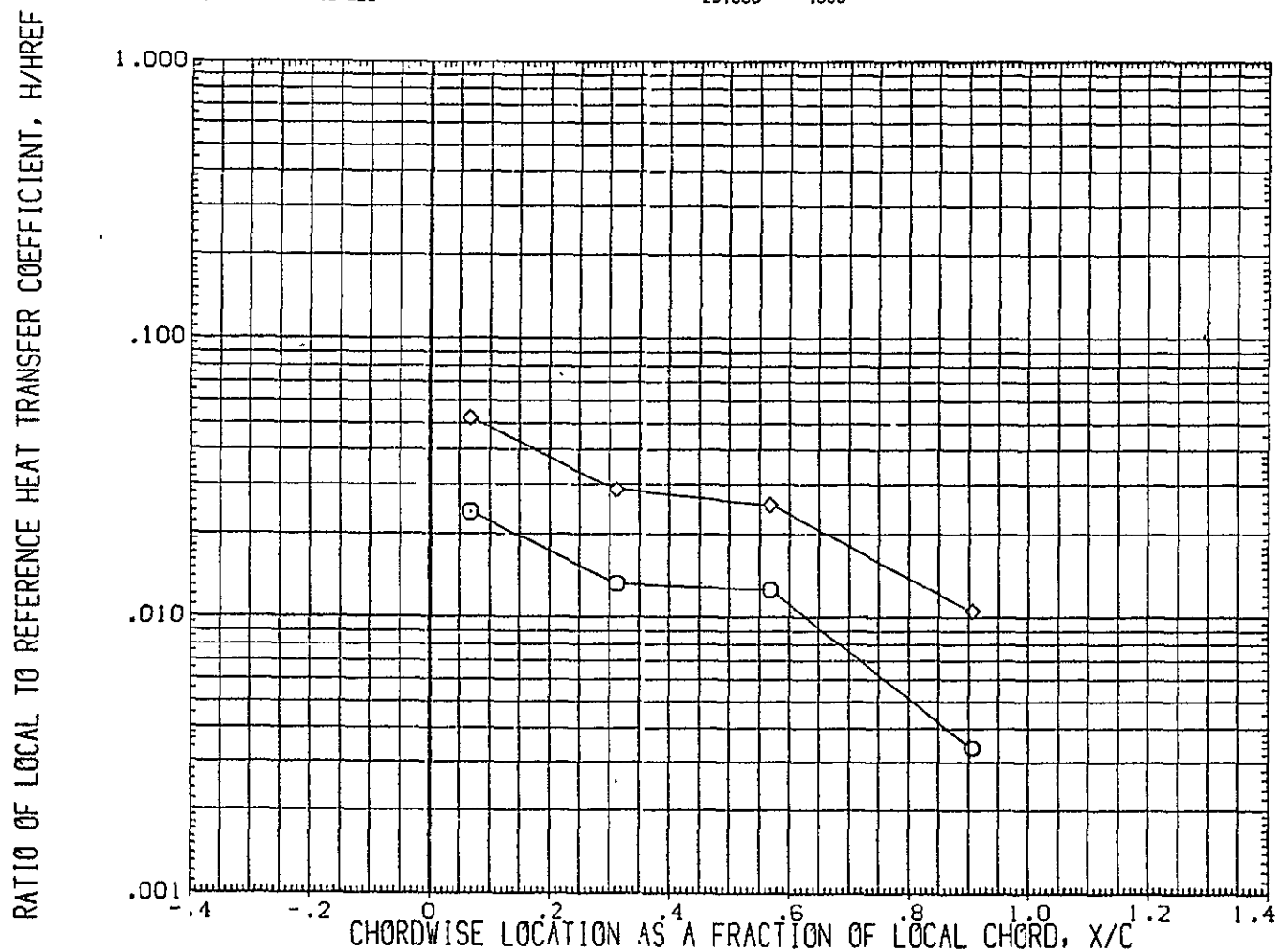


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT= 1.000 2Y/B = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	10.000	.000
(RUGV10)	DATA NOT AVAILABLE	25.000	.000

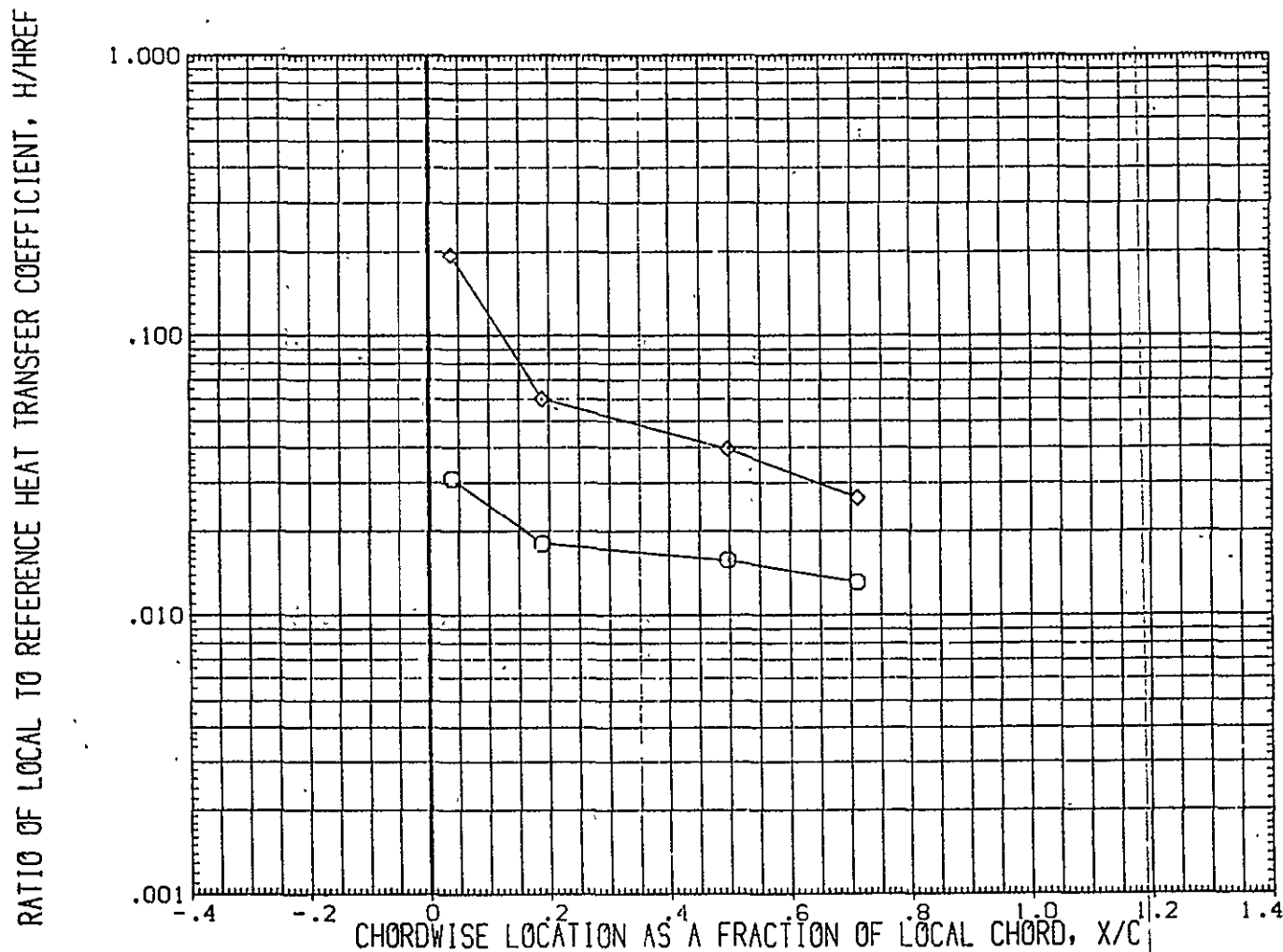


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT= 1.000 2Y/B = .500

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGWC7)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	10.000	.000
(RUGW10)	DATA NOT AVAILABLE	25.000	.000

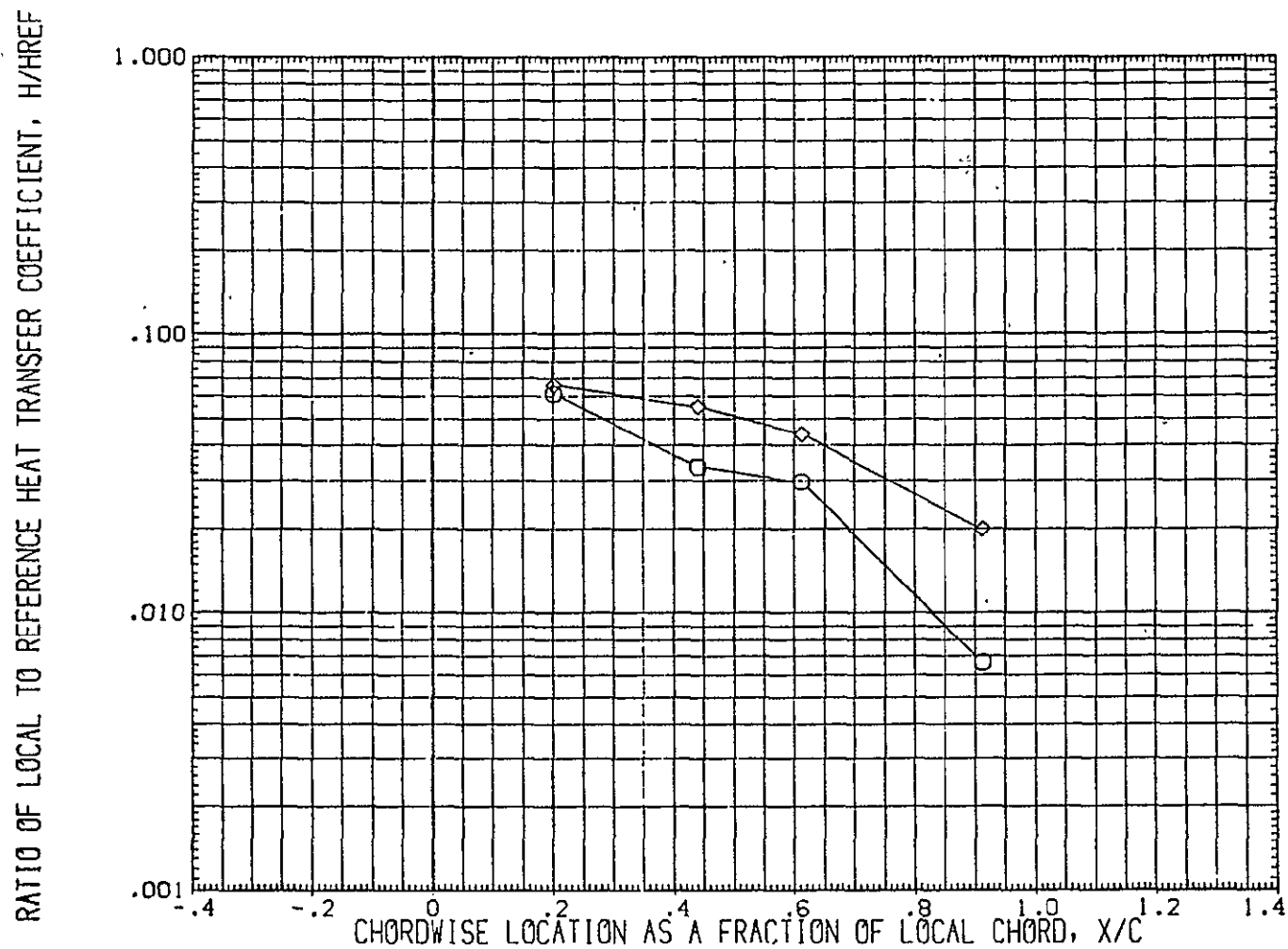


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = 1.000 2Y/B = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CHI2/IH2I (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	DATA NOT AVAILABLE	5.000	.000
(RUGW09)	CHI2/IH2I (CAL HST 173-100) 37 0 WING L.S.	10.000	.000
(RUGW10)	DATA NOT AVAILABLE	25.000	.000

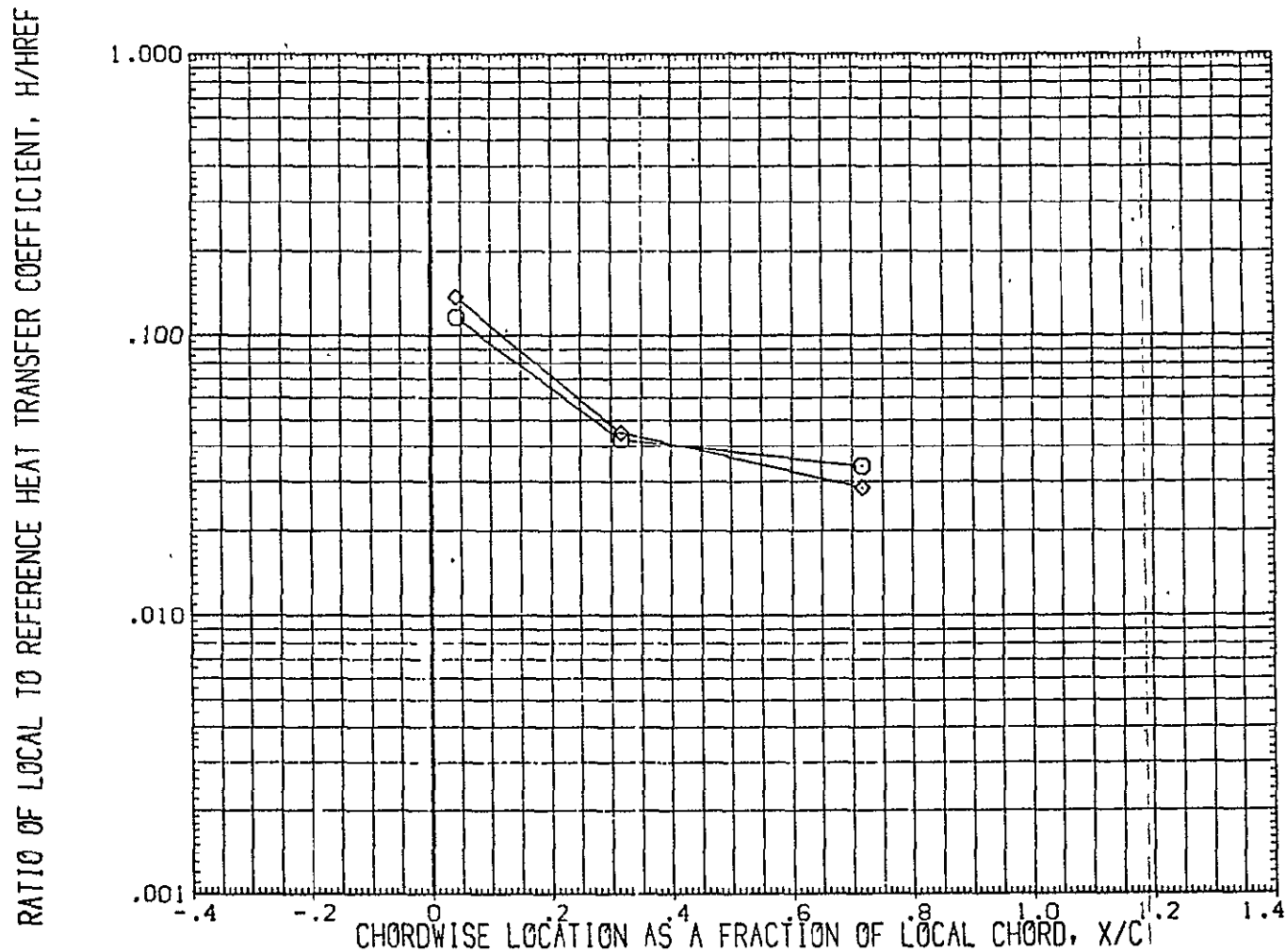


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = 1.000 2Y/B = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	10.000	.000
(RUGV10)	DATA NOT AVAILABLE	25.000	.000

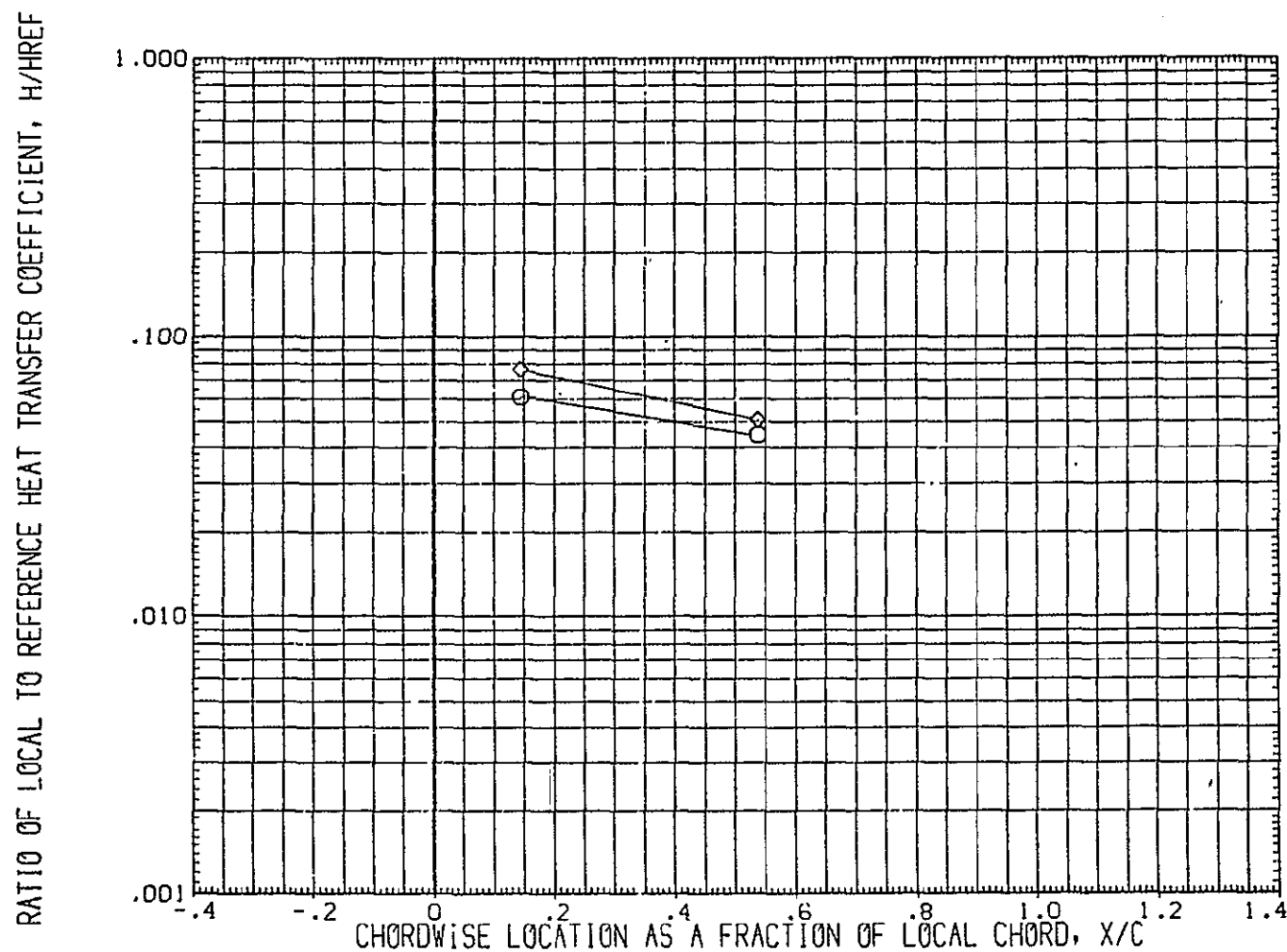


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT = 1.000 $2Y/B = .950$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG#07)	C-12/1421 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUG#08)	C-12/1421 (CAL HST 173-100) 37 0 WING L.S.	5.000	.000
(RUG#09)	DATA NOT AVAILABLE	10.000	.000
(RUG#10)	C-12/1421 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

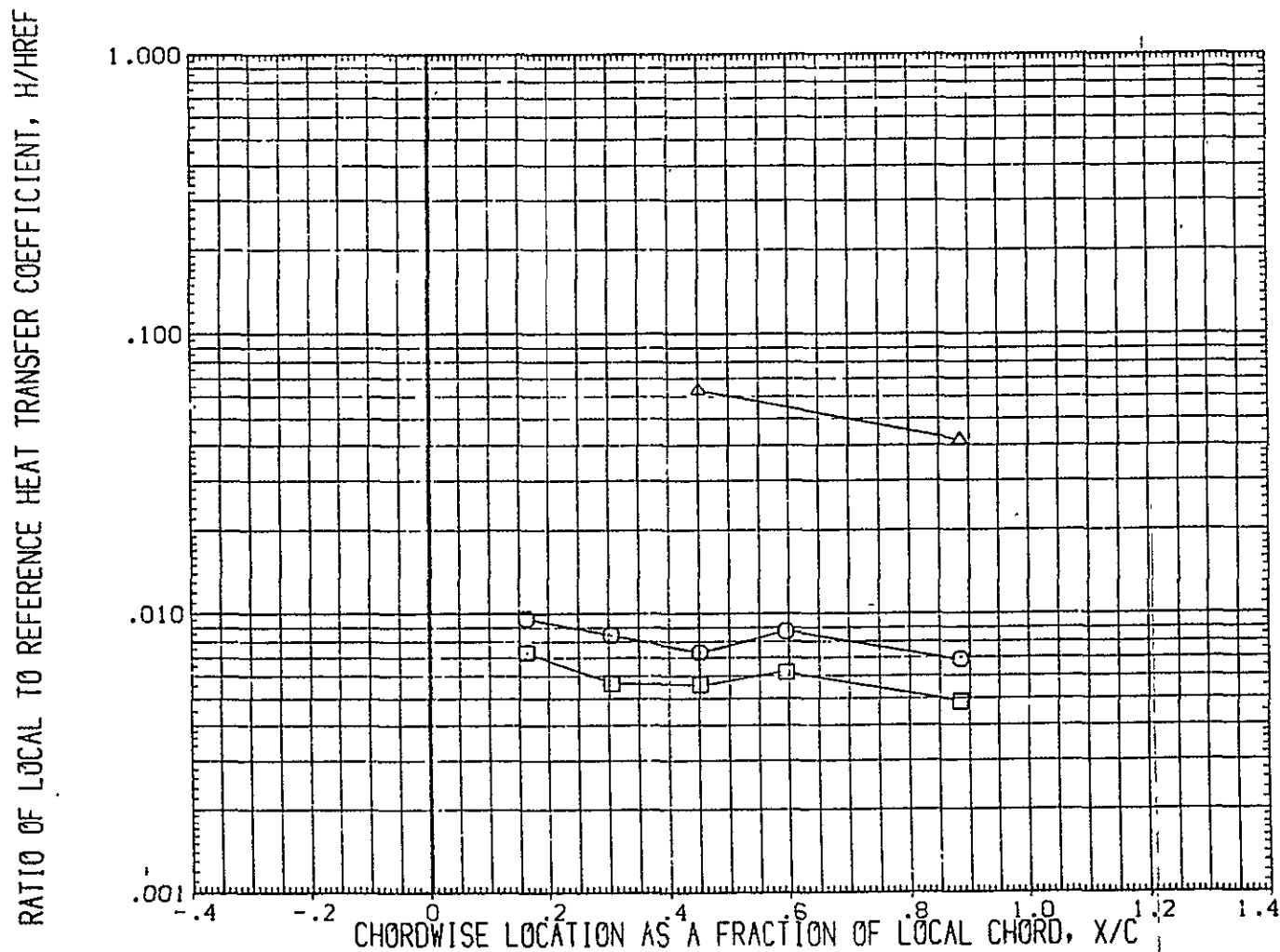


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = .850 $2Y/B$ = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/IH21 (CAL HST 173-100) 37 D WING L.S.	.000	.000
(RUGW08)	OH12/IH21 (CAL HST 173-100) 37 D WING L.S.	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	OH12/IH21 (CAL HST 173-100) 37 D WING L.S.	25.000	.000

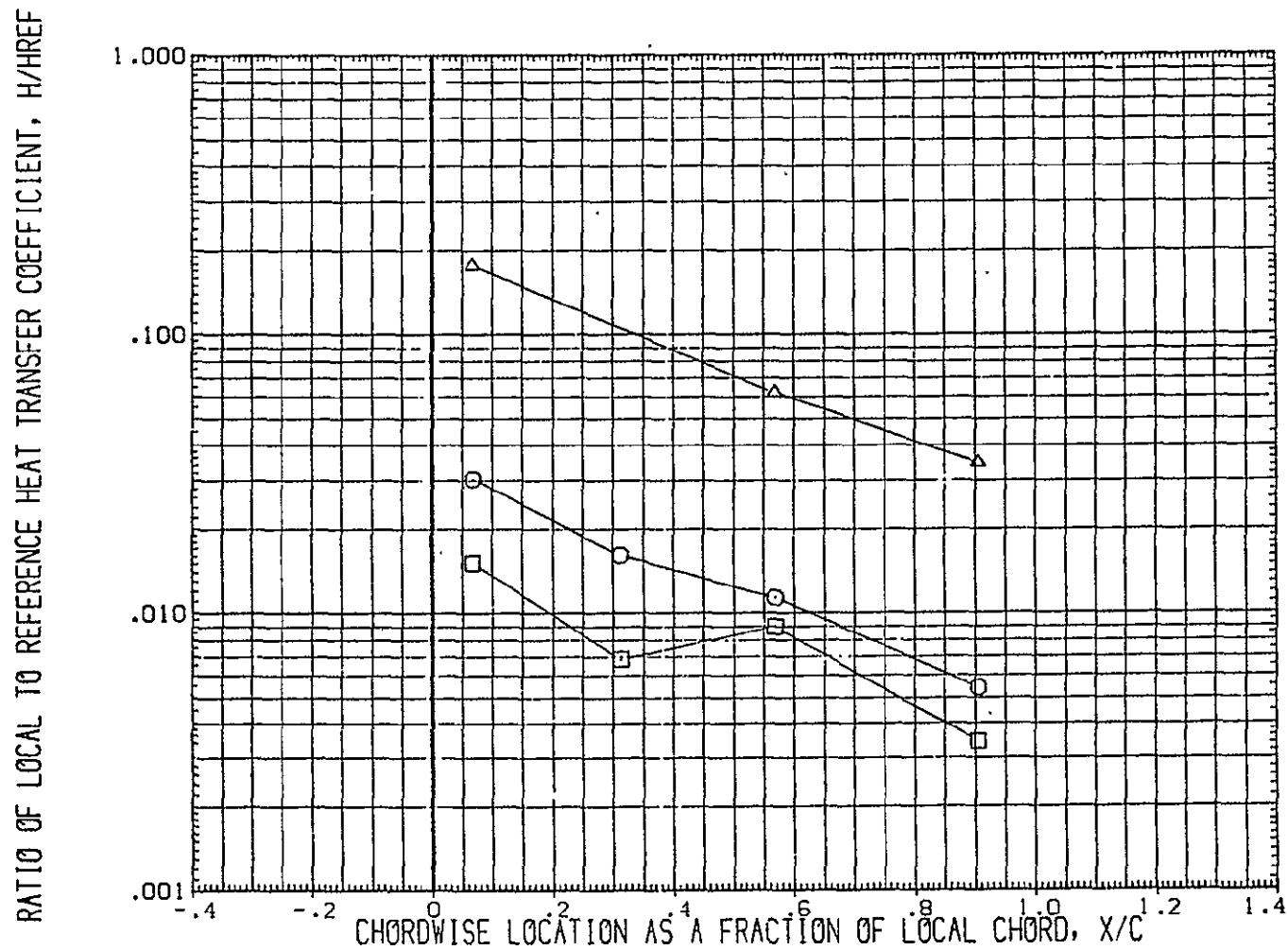


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 19.180 HAW/HT = .850 $2Y/B$ = .400 PAGE 491

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07) \square	DH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08) \square	DH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	5.000	.000
(RUGW09) \times	DATA NOT AVAILABLE	10.000	.000
(RUGW10) \triangle	DH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

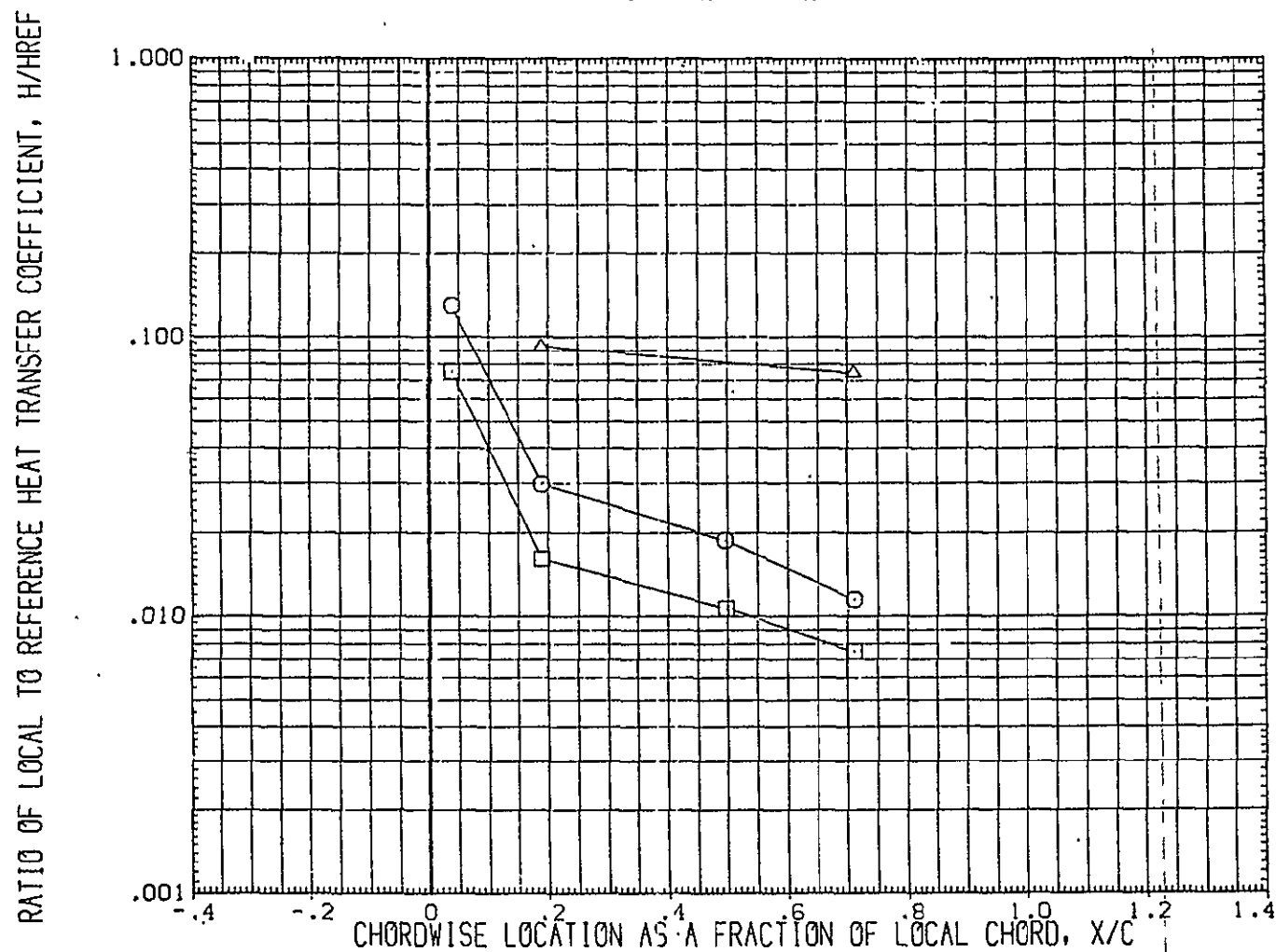


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = .850 $2Y/B = .500$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 D WING L.S.	.000	.000
(RUGW08)	OH12/1H21 (CAL HST 173-100) 37 D WING L.S.	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 D WING L.S.	25.000	.000

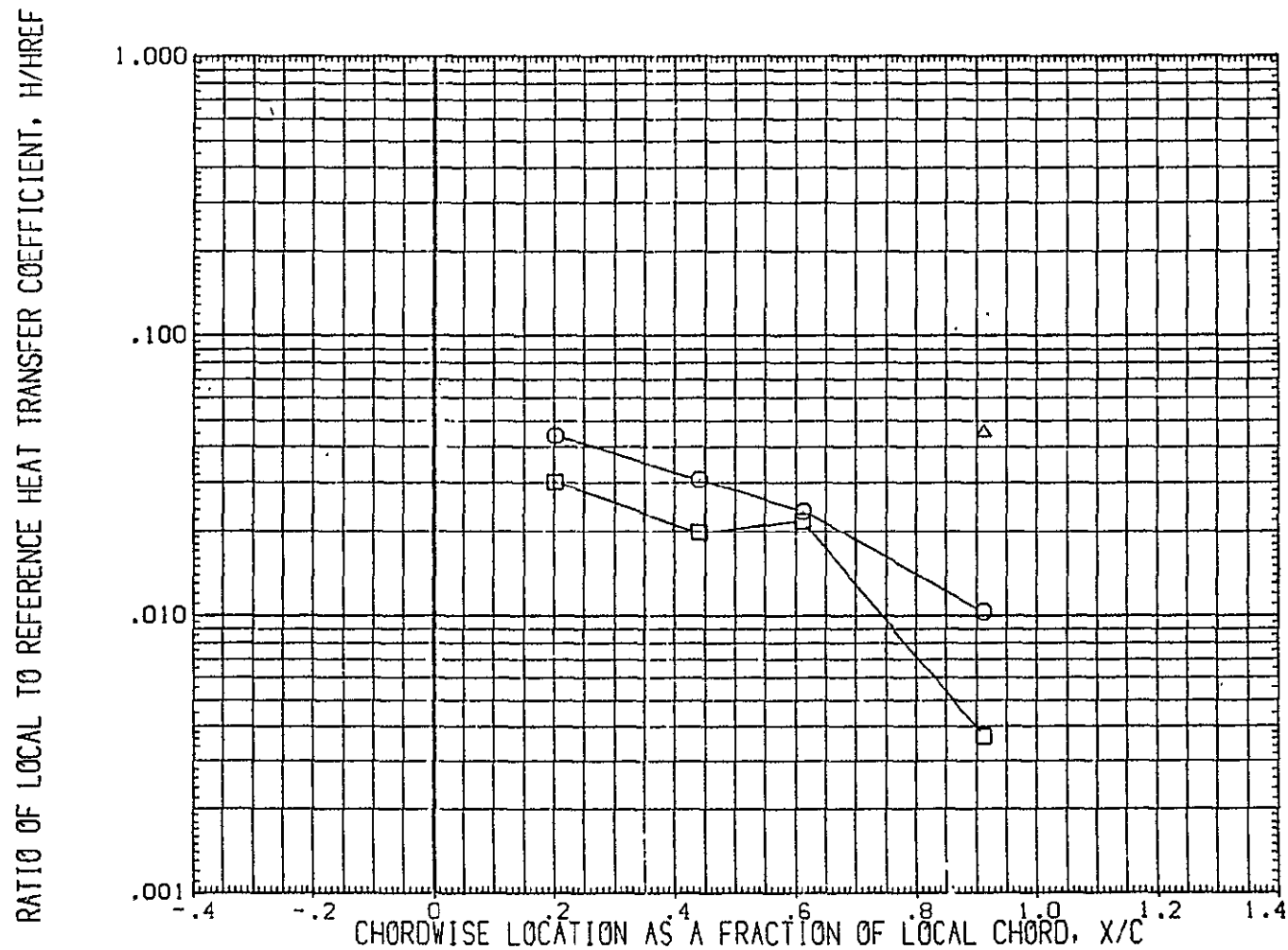


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 19.180 HAW/HT = .850 $2Y/B$ = .600 PAGE 493

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	0412/1421 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	0412/1421 (CAL HST 173-100) 37 0 WING L.S.	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	0412/1421 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

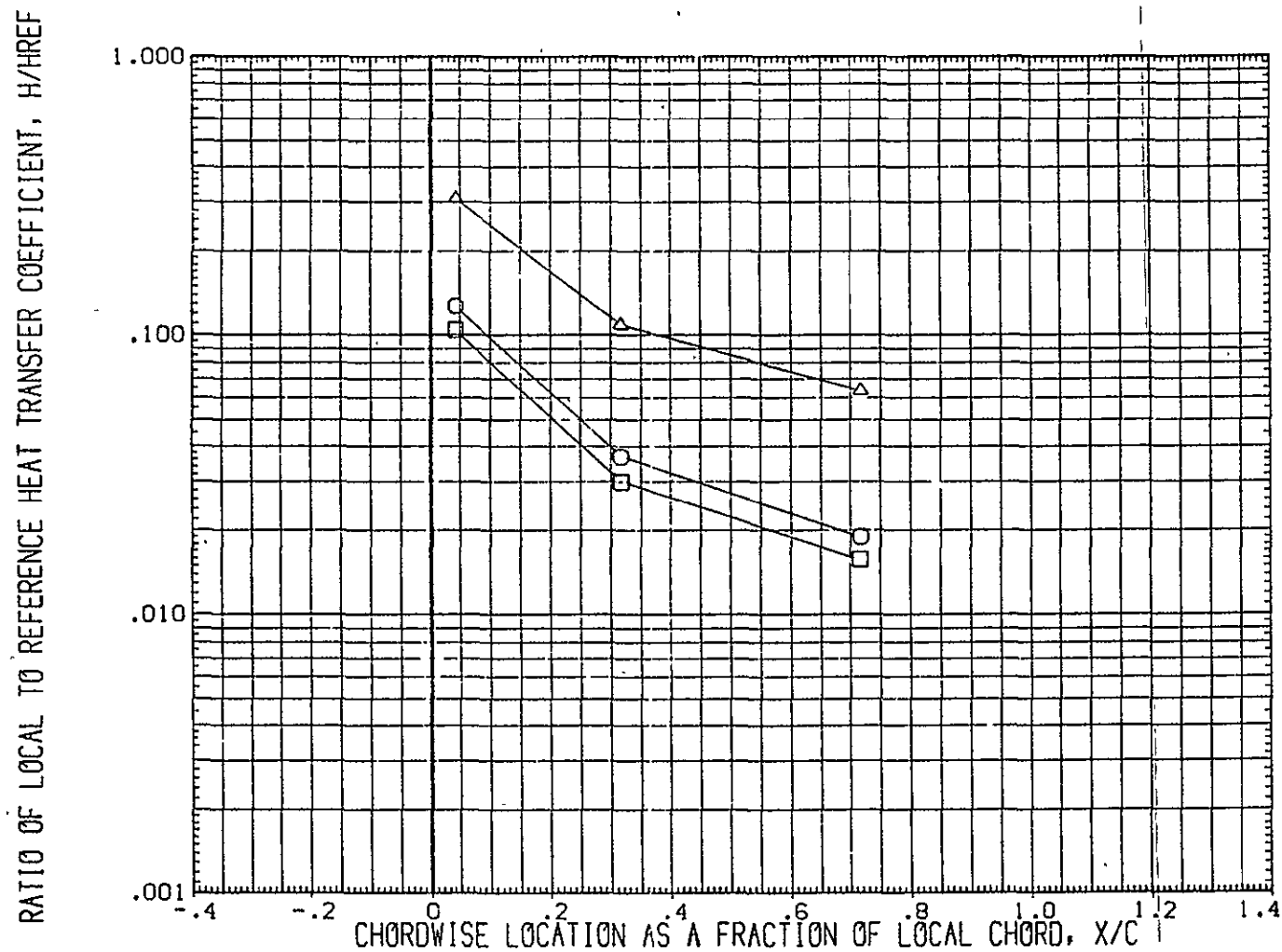


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = .850 $2Y/B$ = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

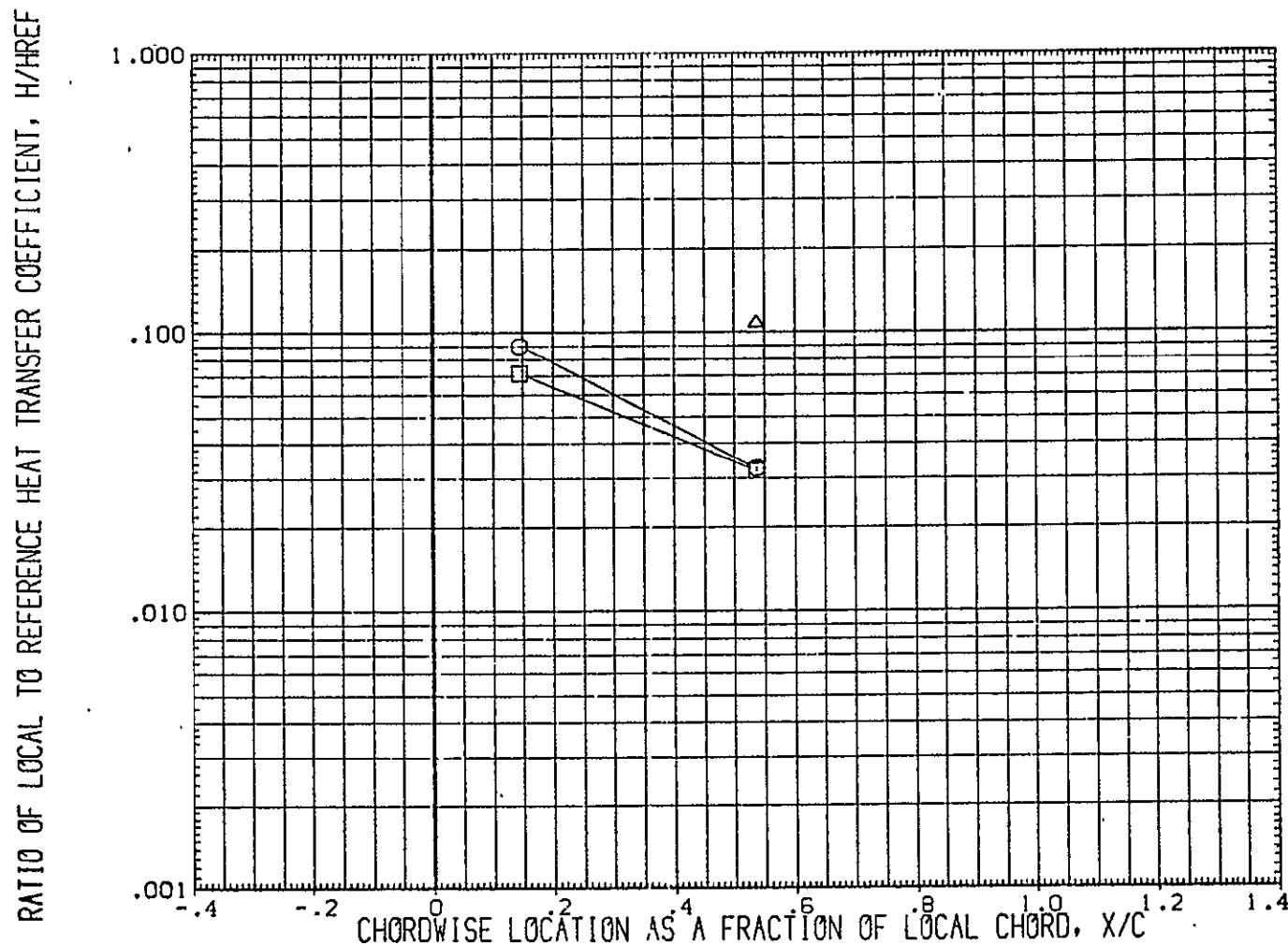


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = .850 2Y/B = .950

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	CH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	CH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

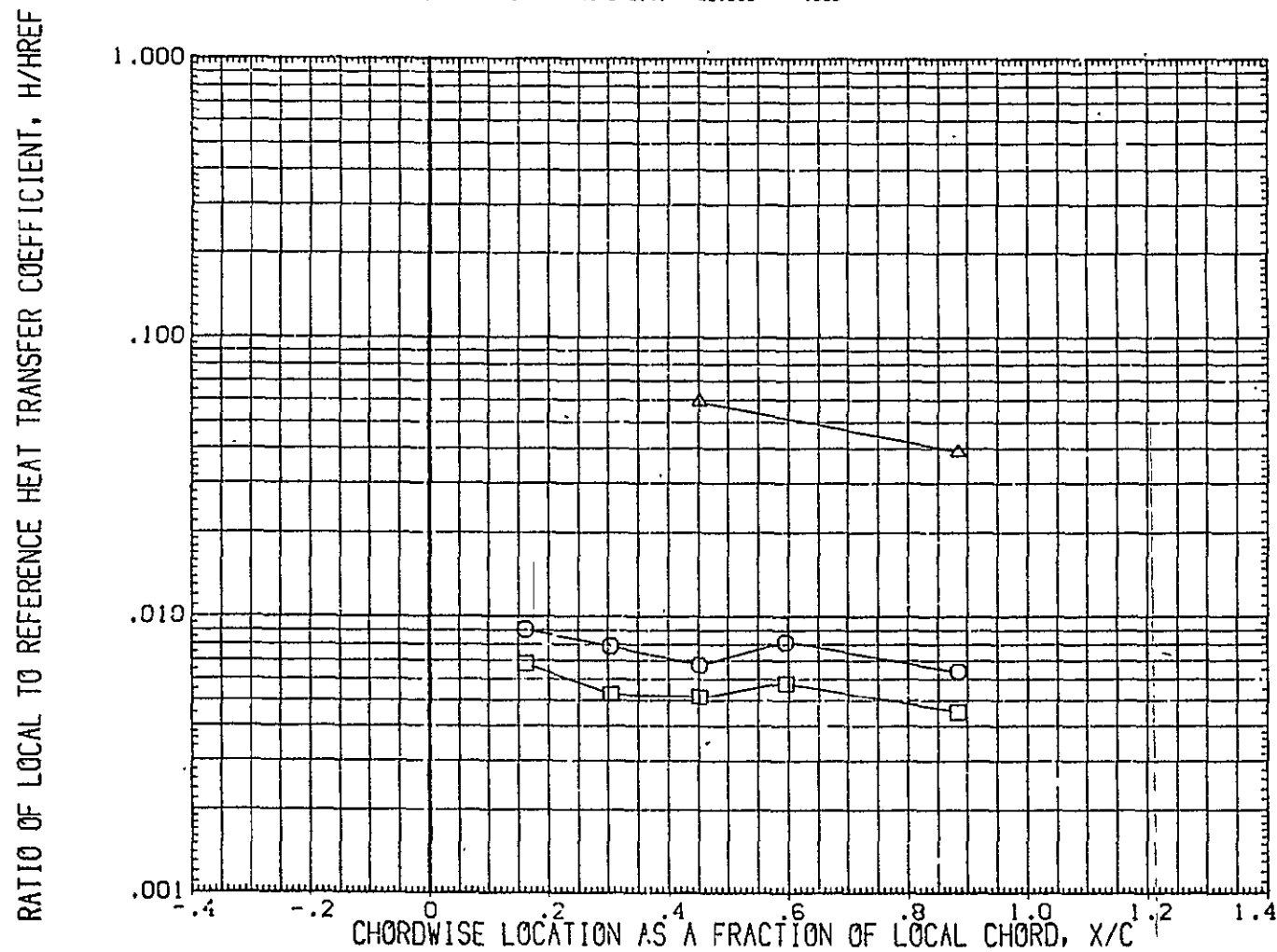


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = .900 $2Y/B$ = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

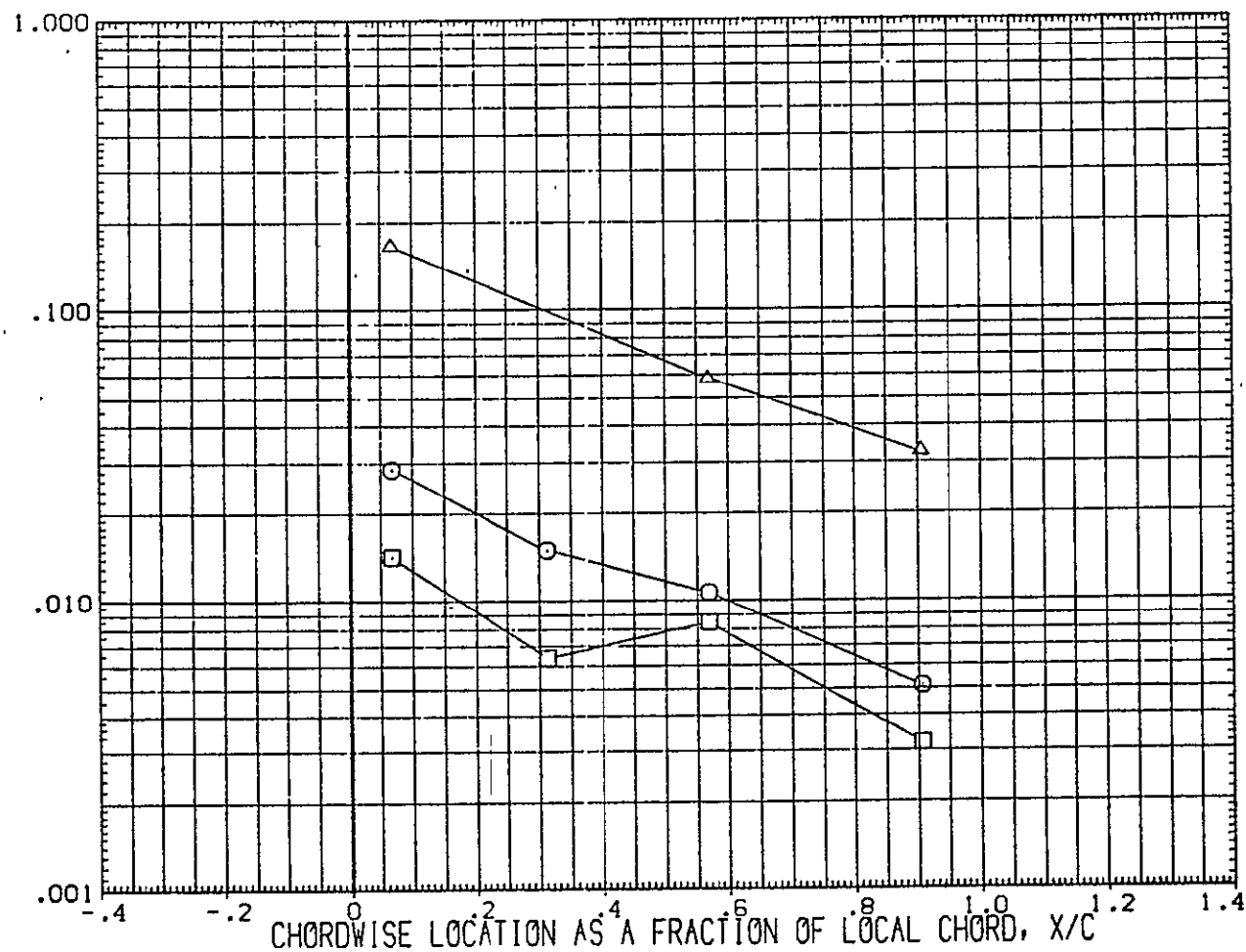


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = .900 2Y/B = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

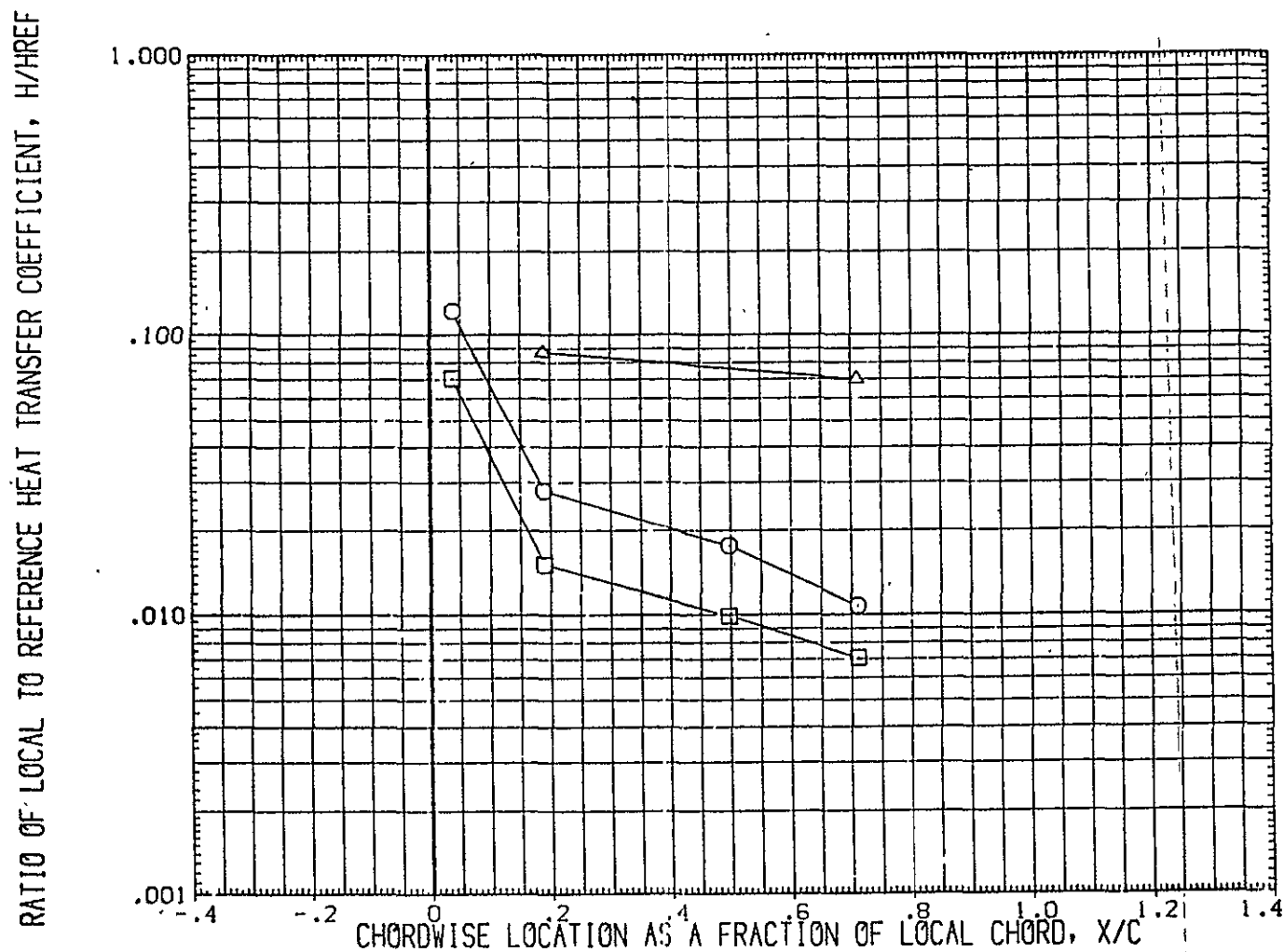


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 19.180 $HAW/HT = .900$ $2Y/B = .500$ PAGE 498

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CH12/1H21 (CAL HST 173-100) 37 D WING L.S.	.000	.000
(RUGW08)	CH12/1H21 (CAL HST 173-100) 37 D WING L.S.	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 D WING L.S.	25.000	.000

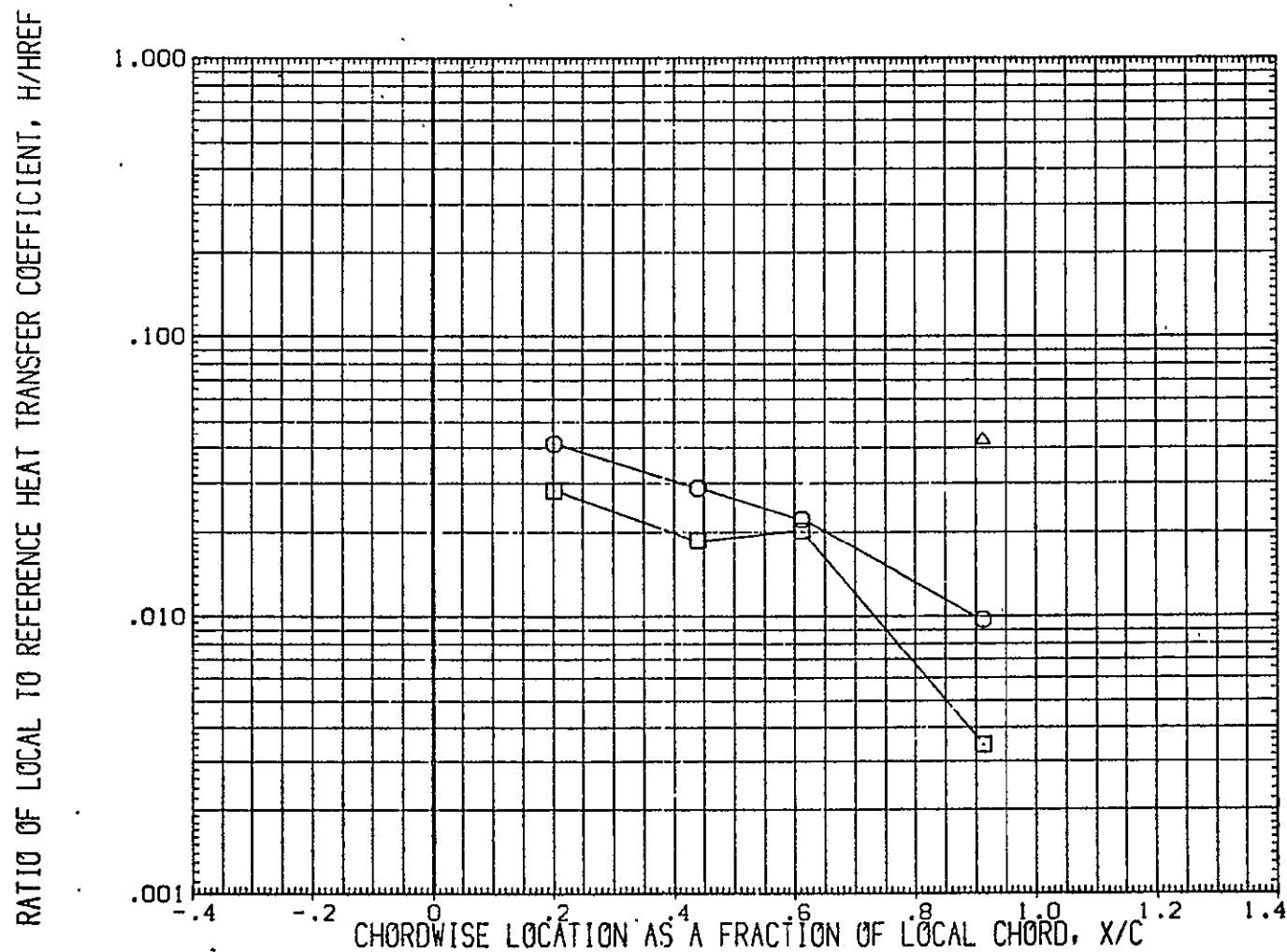


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = .900 $2Y/B = .600$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL FST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	OH12/1H21 (CAL FST 173-100) 37 0 WING L.S.	5.000	.000
(RUGW09)	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

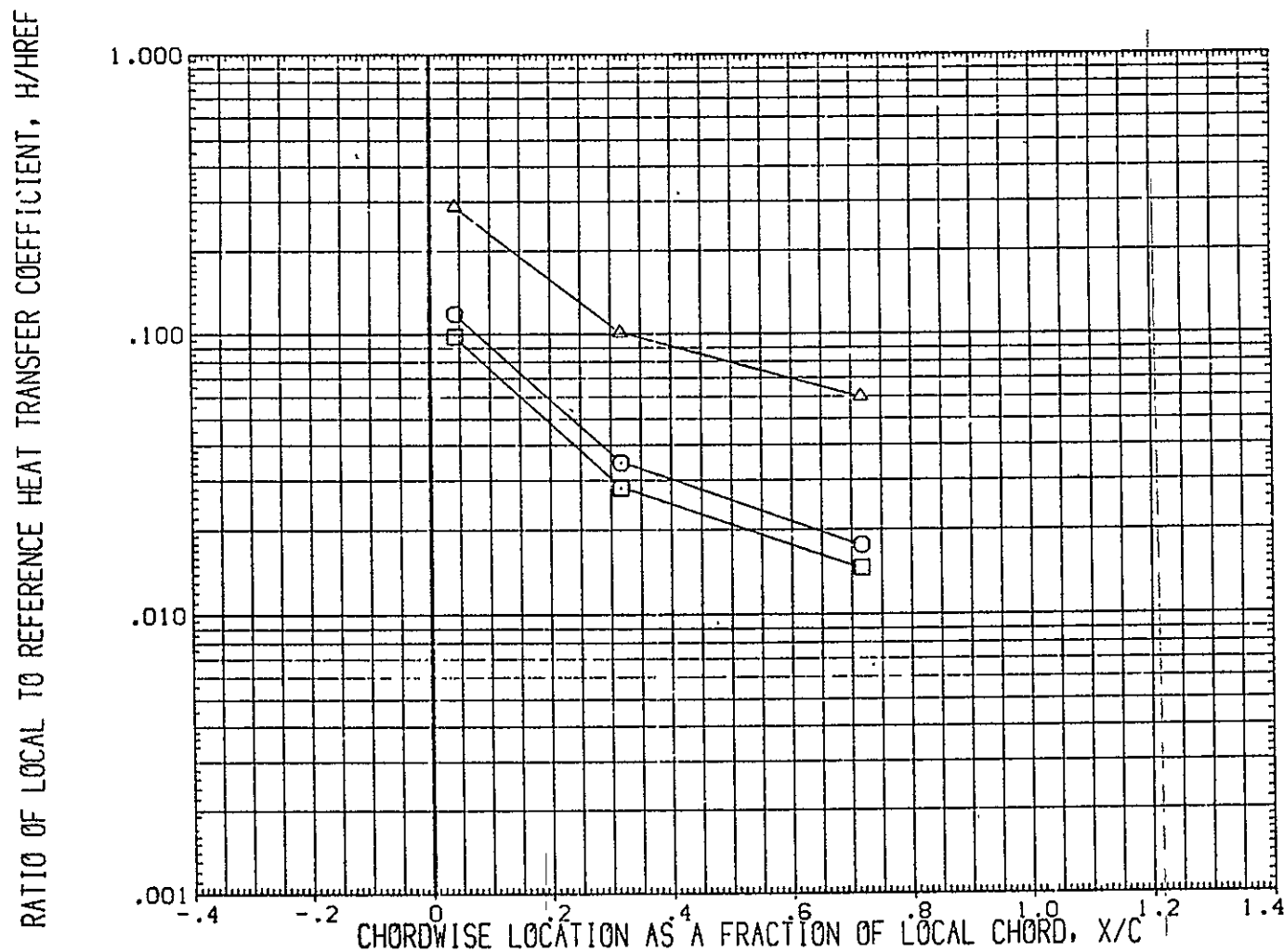


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = .900 $2Y/B$ = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	BETA
(RUGW07)	OH12/IH21 (CAL HST 173-100)	37 0	WING L.S.	.000
(RUGW08)	OH12/IH21 (CAL HST 173-100)	37 0	WING L.S.	.000
(RUGW09)	DATA NOT AVAILABLE			.000
(RUGW10)	OH12/IH21 (CAL HST 173-100)	37 0	WING L.S.	.000

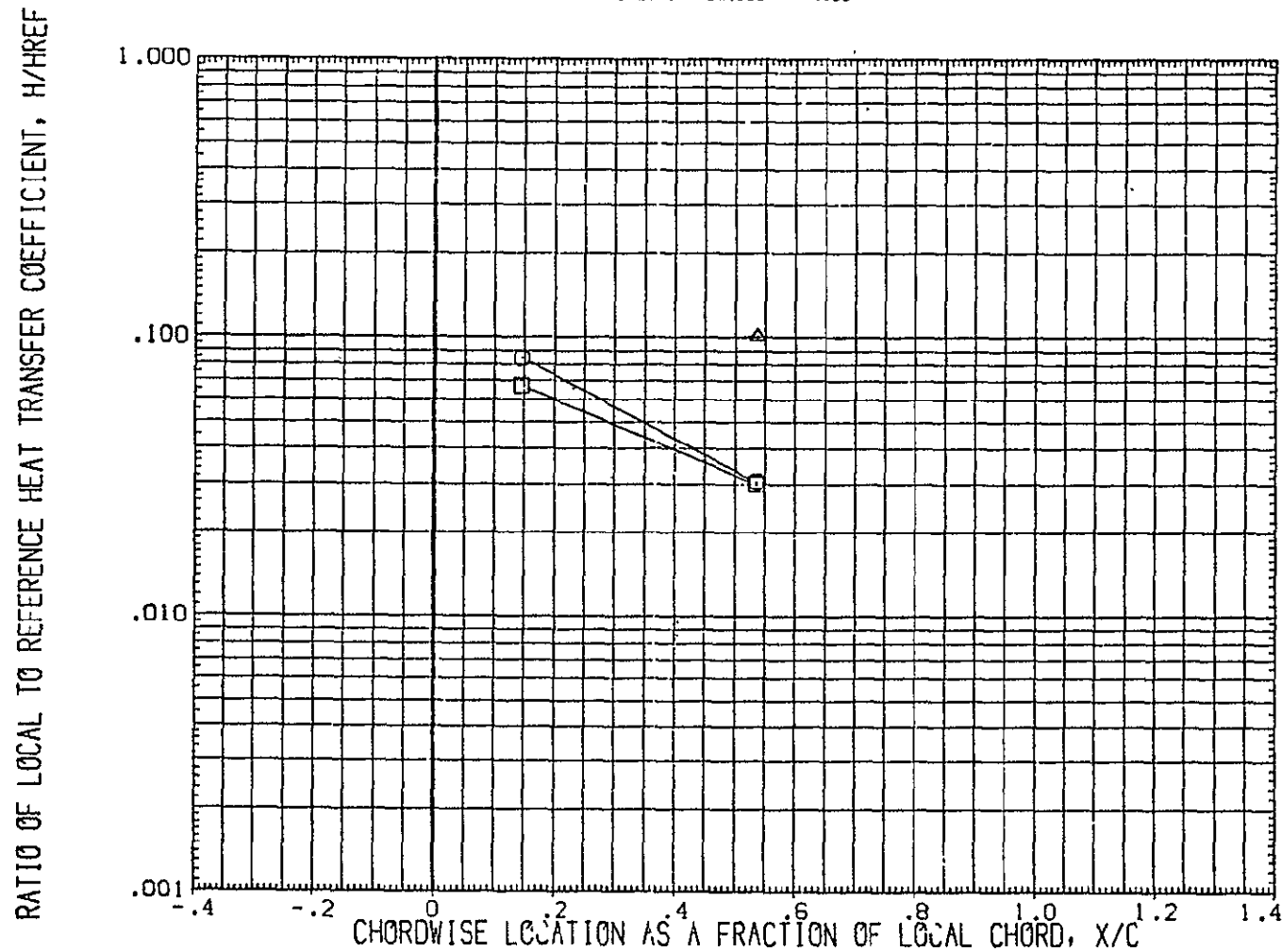


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 19.180 HAW/HT= .900 $2Y/B$ = .950 PAGE 501

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV02)	CH12/1H21 (CAL HST 173-100) 37 D WING L.S.	.000	.000
(RUGV08)	CH12/1H21 (CAL HST 173-100) 37 D WING L.S.	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	CH12/1H21 (CAL HST 173-100) 37 D WING L.S.	25.000	.000

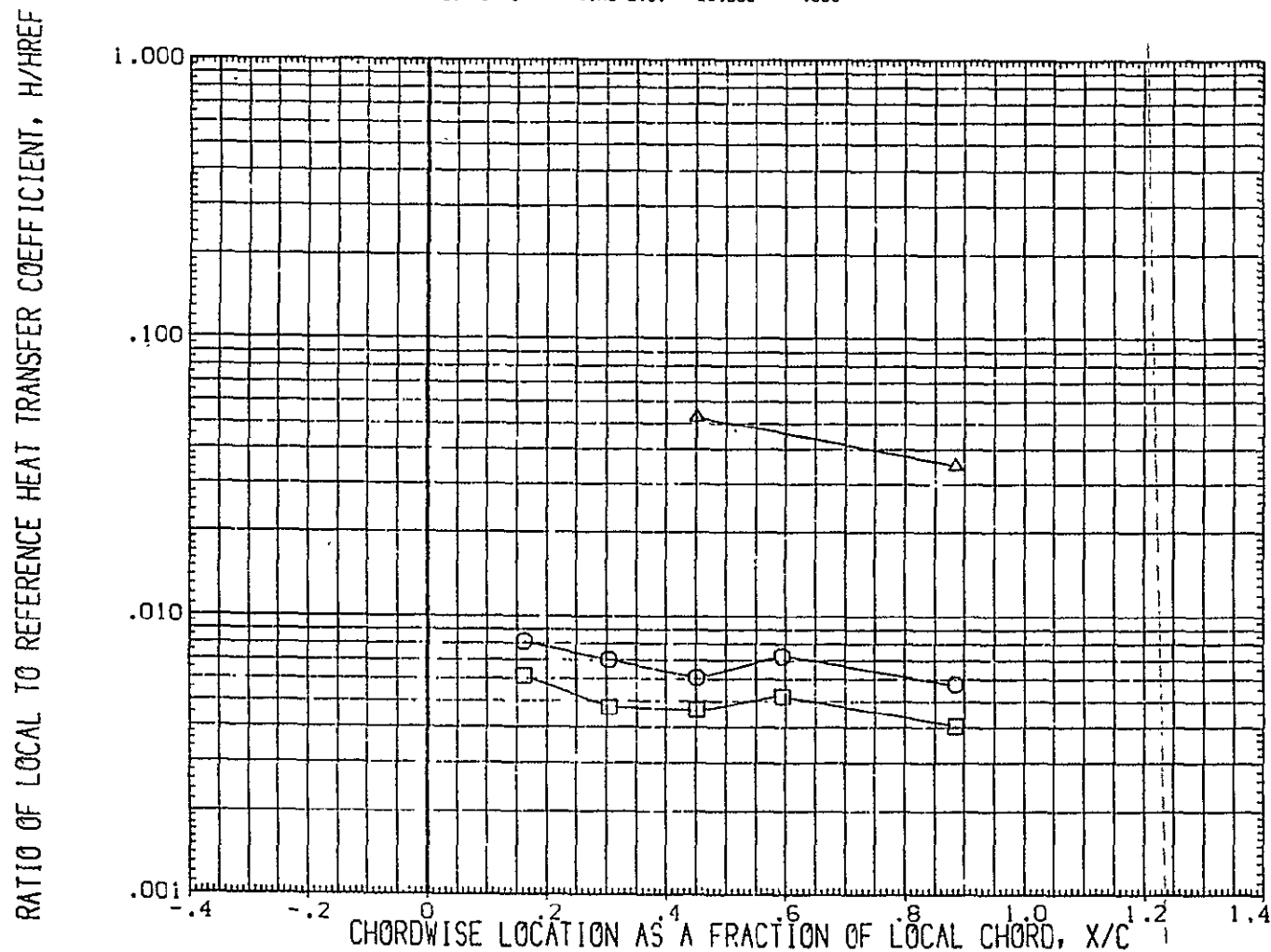


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = 1.000 $2Y/B = .250$

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	○	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW08)	□	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW09)	◇	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	△	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000

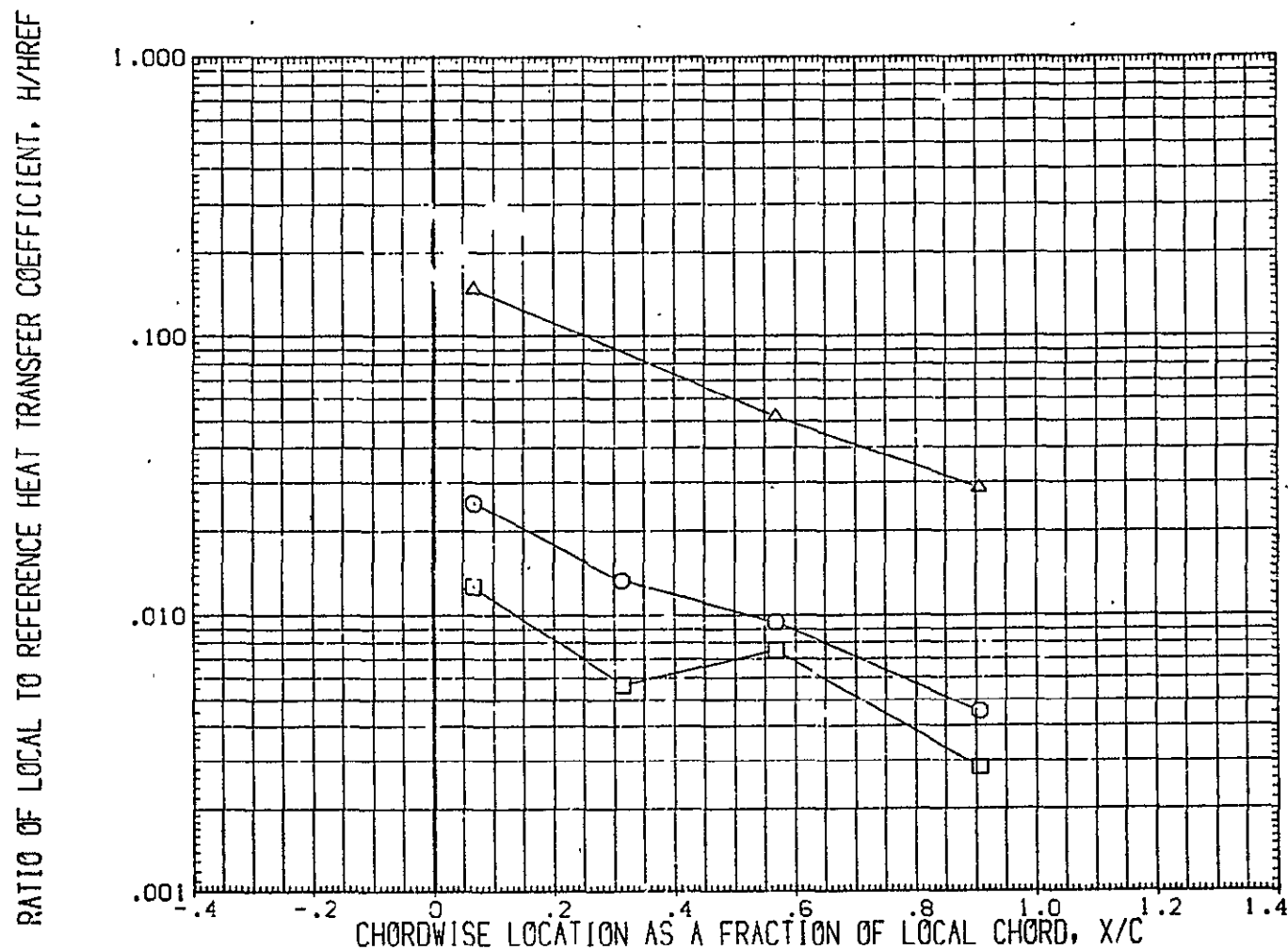


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = 1.000 $2Y/B$ = .400

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	□	GH12/TH21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW08)	□	GH12/TH21 (CAL HST 173-100) 37 0 WING L.S.	5.000	.000
(RUGW09)	×	DATA NOT AVAILABLE	10.000	.000
(RUGW10)	△	GH12/TH21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

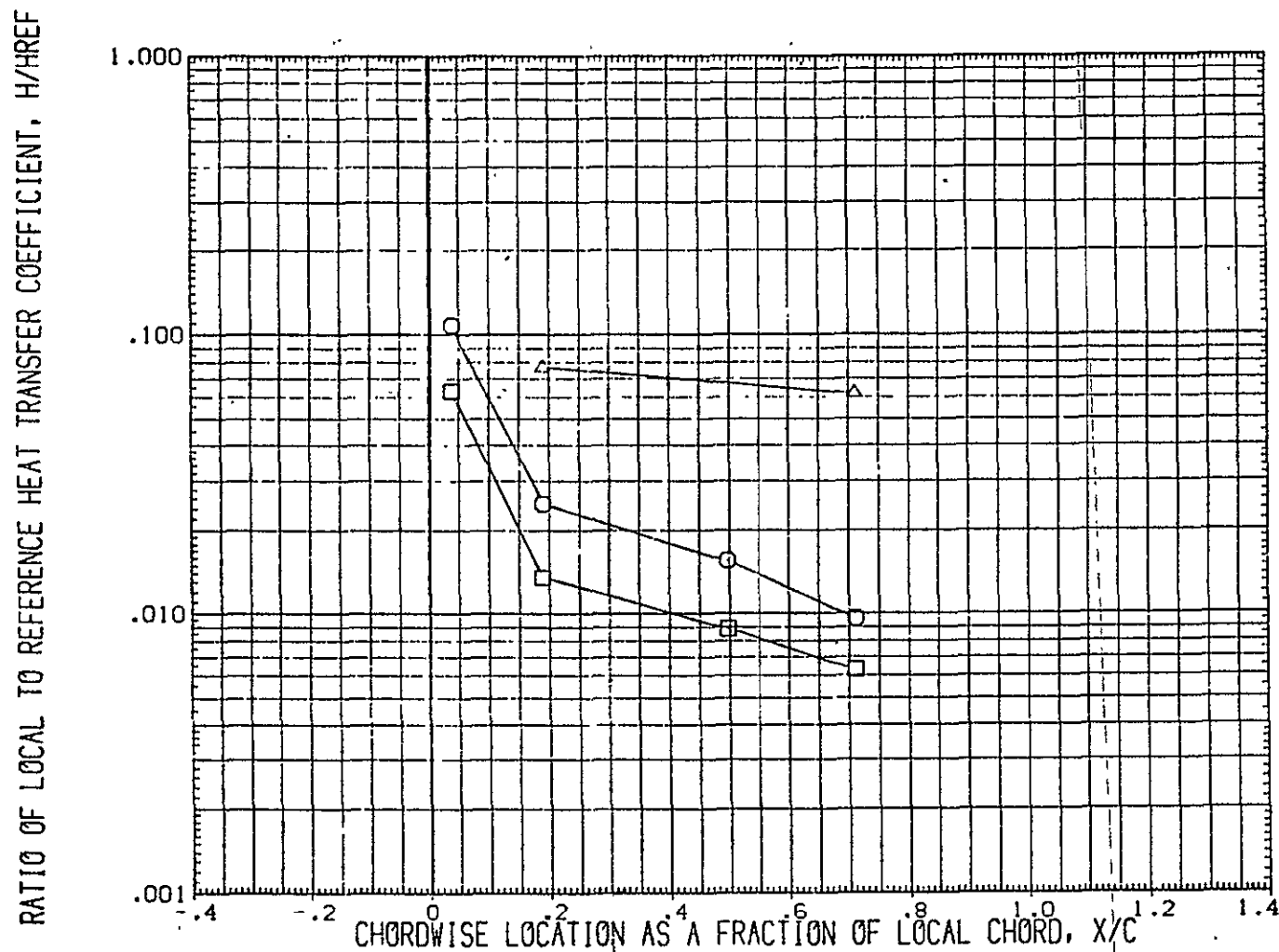


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 19.180 HAW/HT = 1.000 $2Y/B = .500$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUG#07)	CH12/1H21 (CAL HST 173-120) 37 0 WING L.S.	.000	.000
(RUG#08)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	5.000	.300
(RUG#09)	DATA NOT AVAILABLE	10.000	.000
(RUG#10)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000

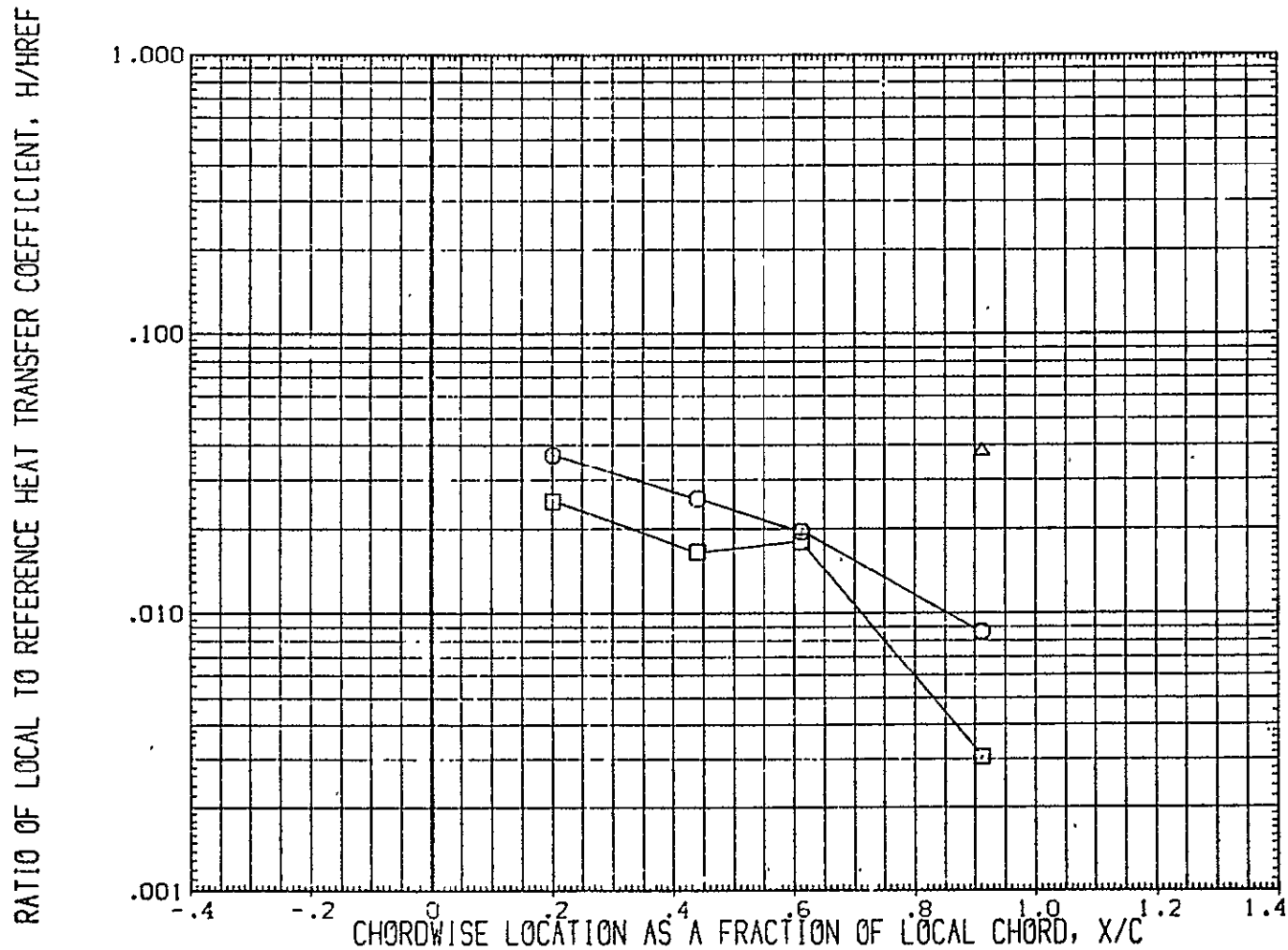


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = 1.000 $2Y/B$ = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUG#07)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000
(PUG#08)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000
(PUG#09)	DATA NOT AVAILABLE		
(PUG#10)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000

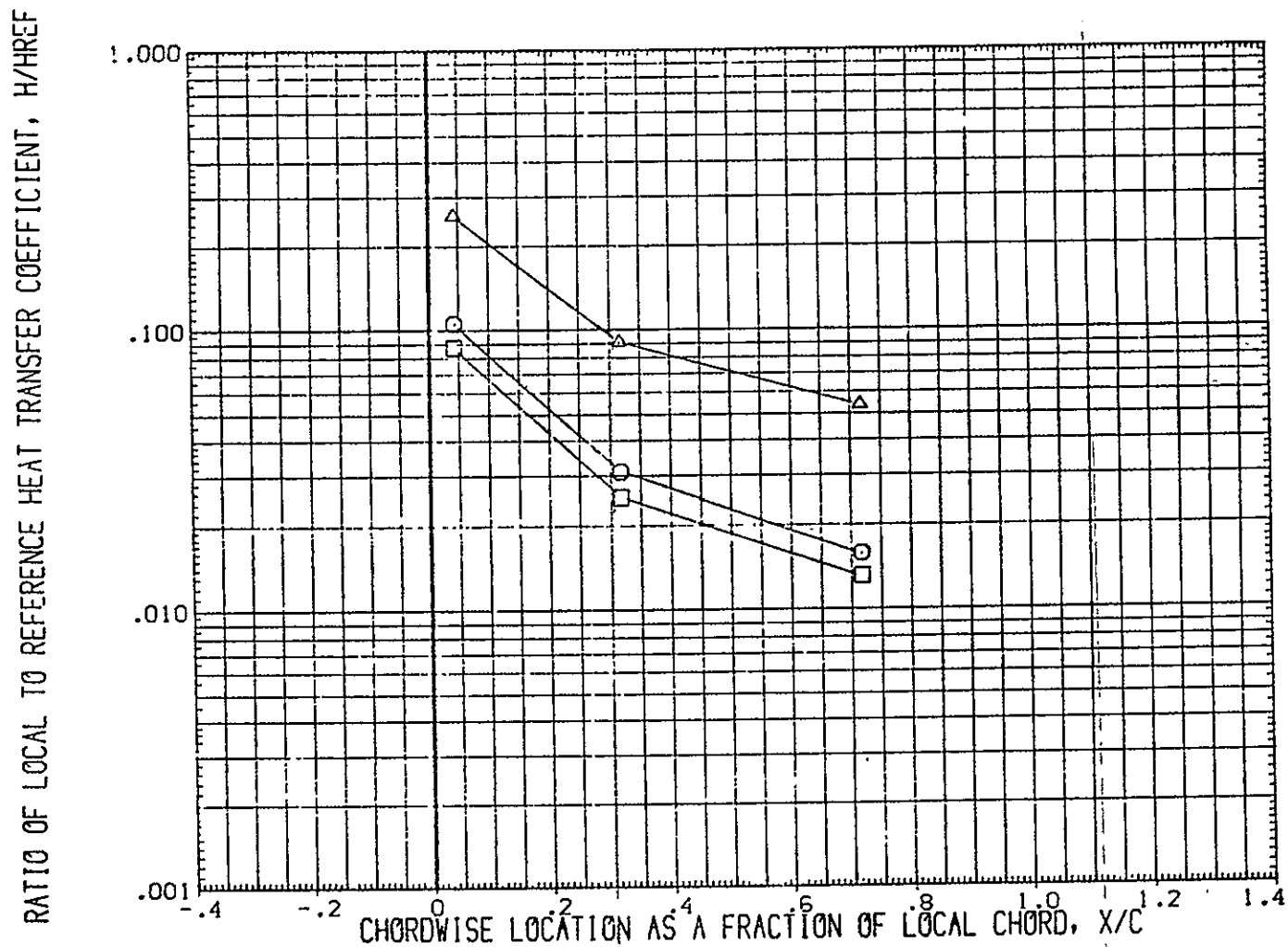


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
 $MACH = 19.180$ $HAW/HT = 1.000$ $2Y/B = .750$ PAGE 506

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG#07)	OH12/IH21 (CAL HSI 173-100) 37 0 WING L.S.	.000	.000
(RUG#08)	OH12/IH21 (CAL HSI 173-100) 37 0 WING L.S.	5.000	.000
(RUG#09)	DATA NOT AVAILABLE	10.000	.000
(RUG#10)	OH12/IH21 (CAL HSI 173-100) 37 0 WING L.S.	25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

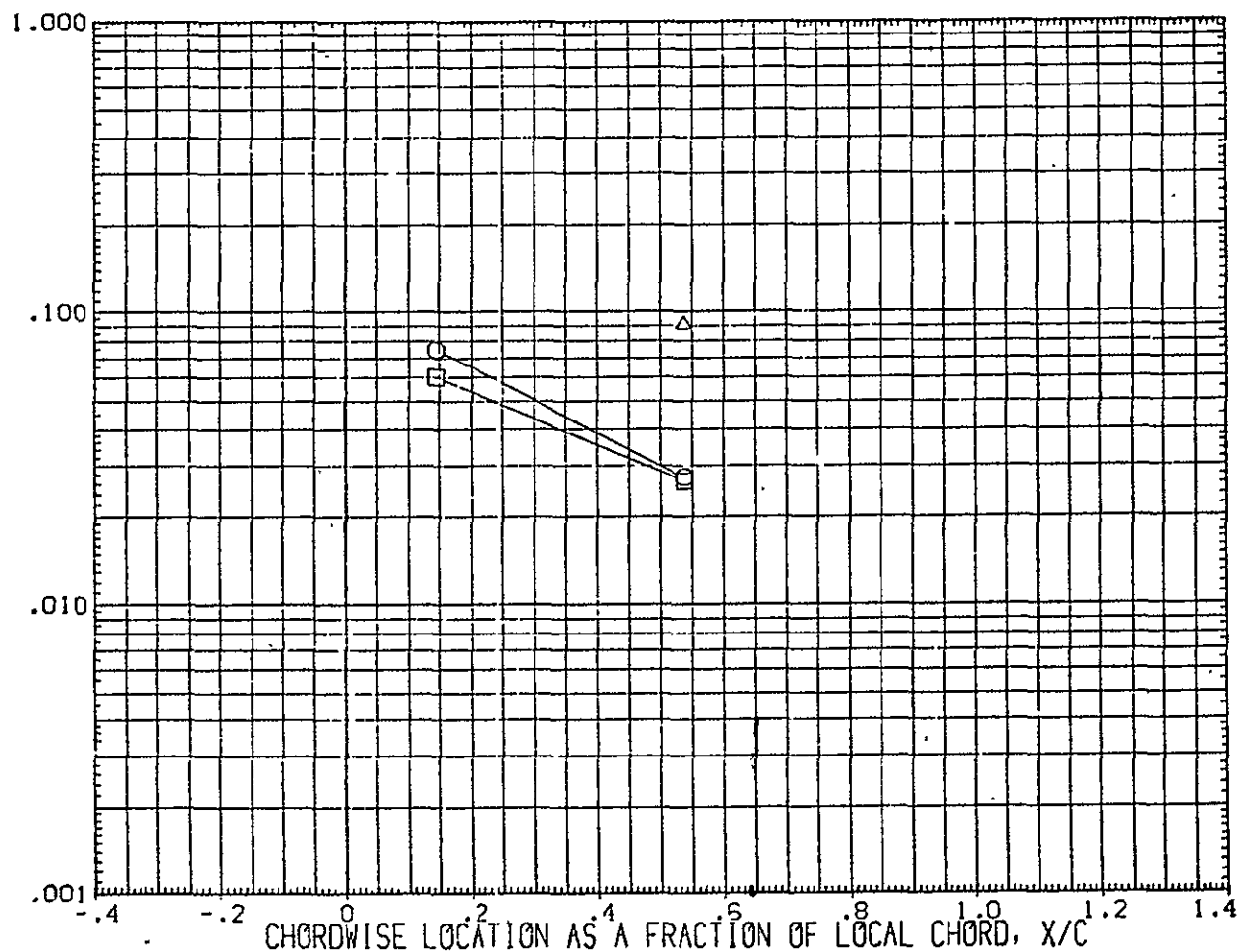


FIG. 19 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.180 HAW/HT = 1.000 $2Y/B = .950$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	.000	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000

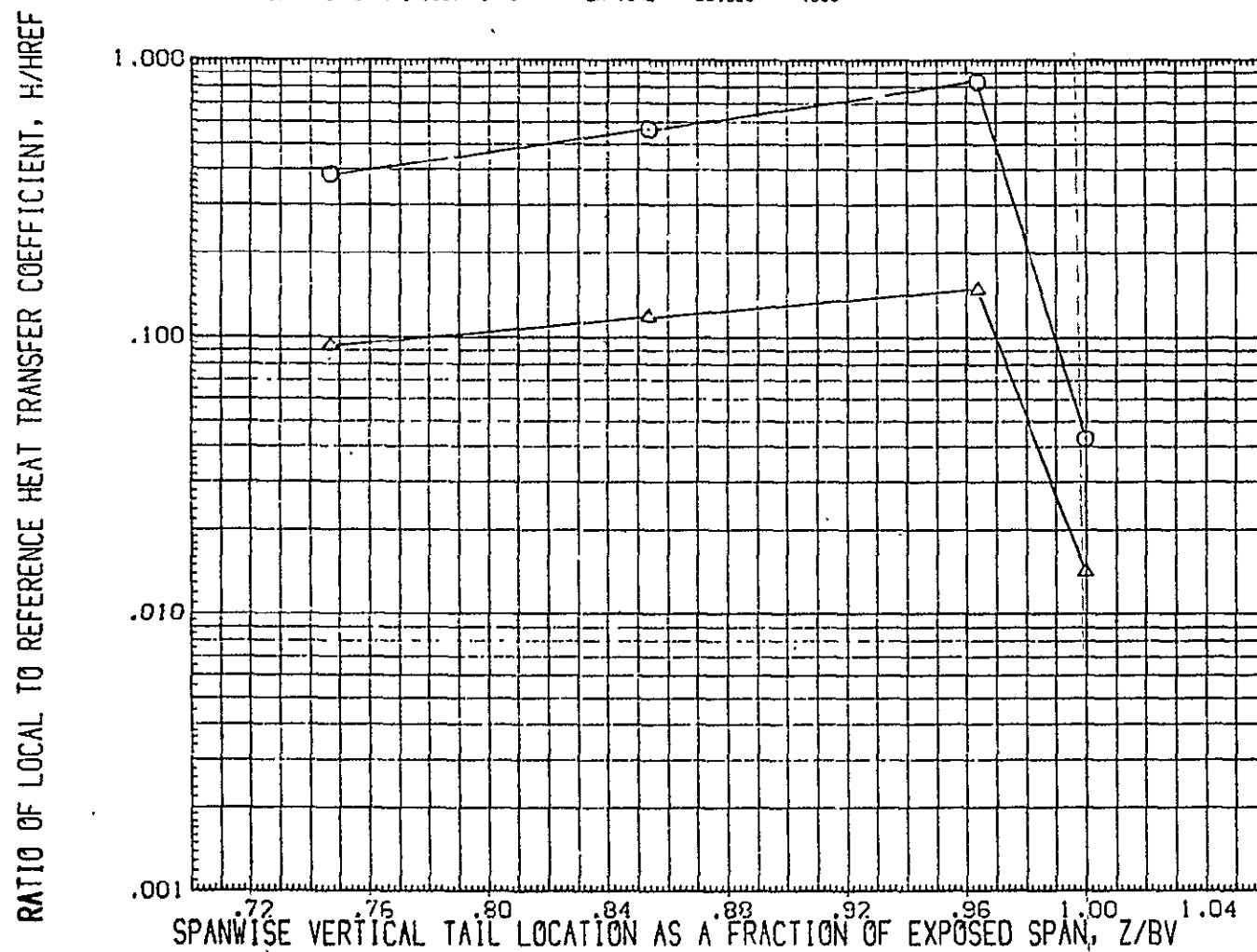


FIG. 20 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 6.990 $HAW/HT = .850$ $GAGENO = 40.000$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	.000	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000

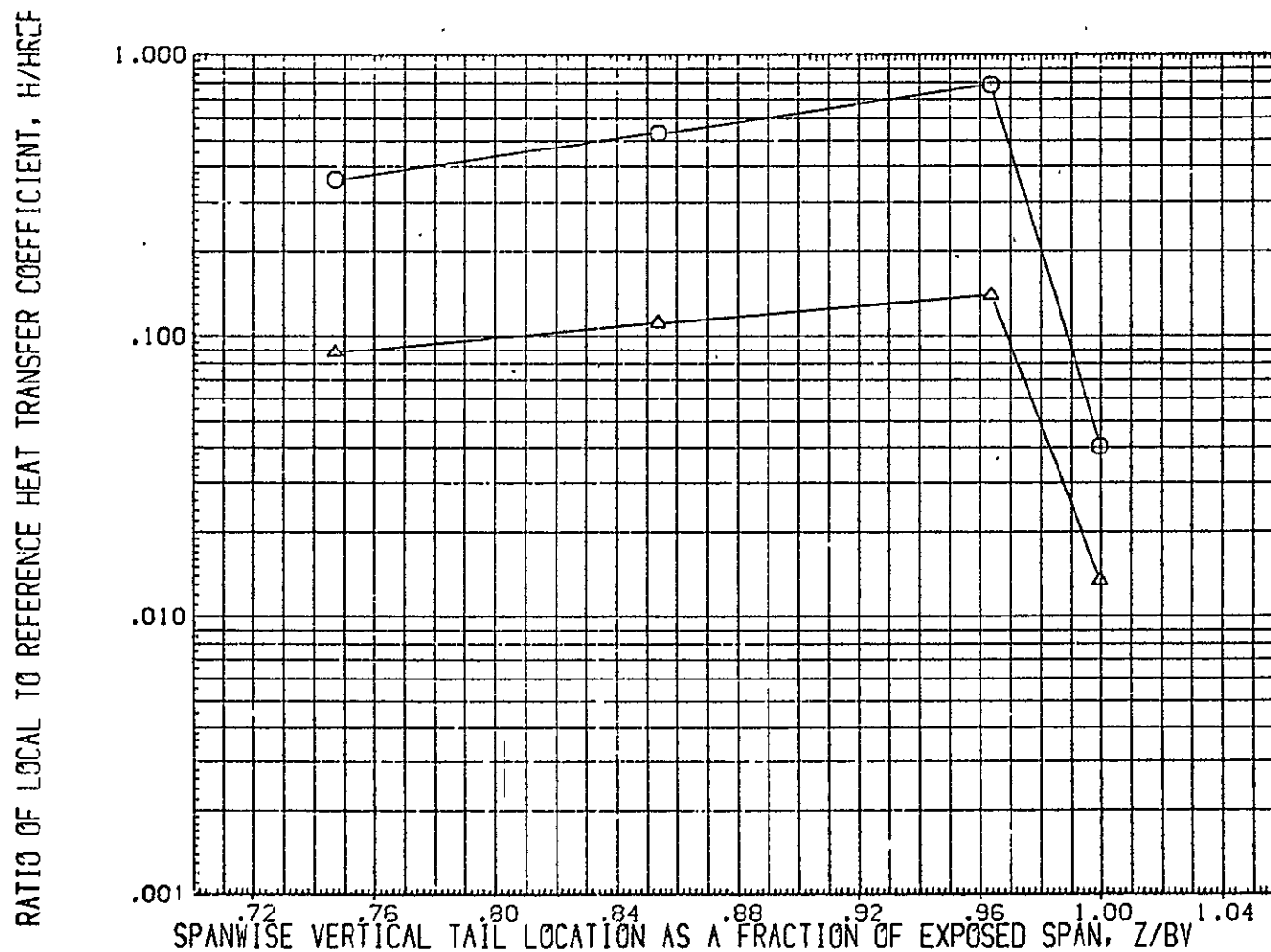


FIG. 20 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 6.920 HAW/HT = .300 GAGENO = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	.000	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000

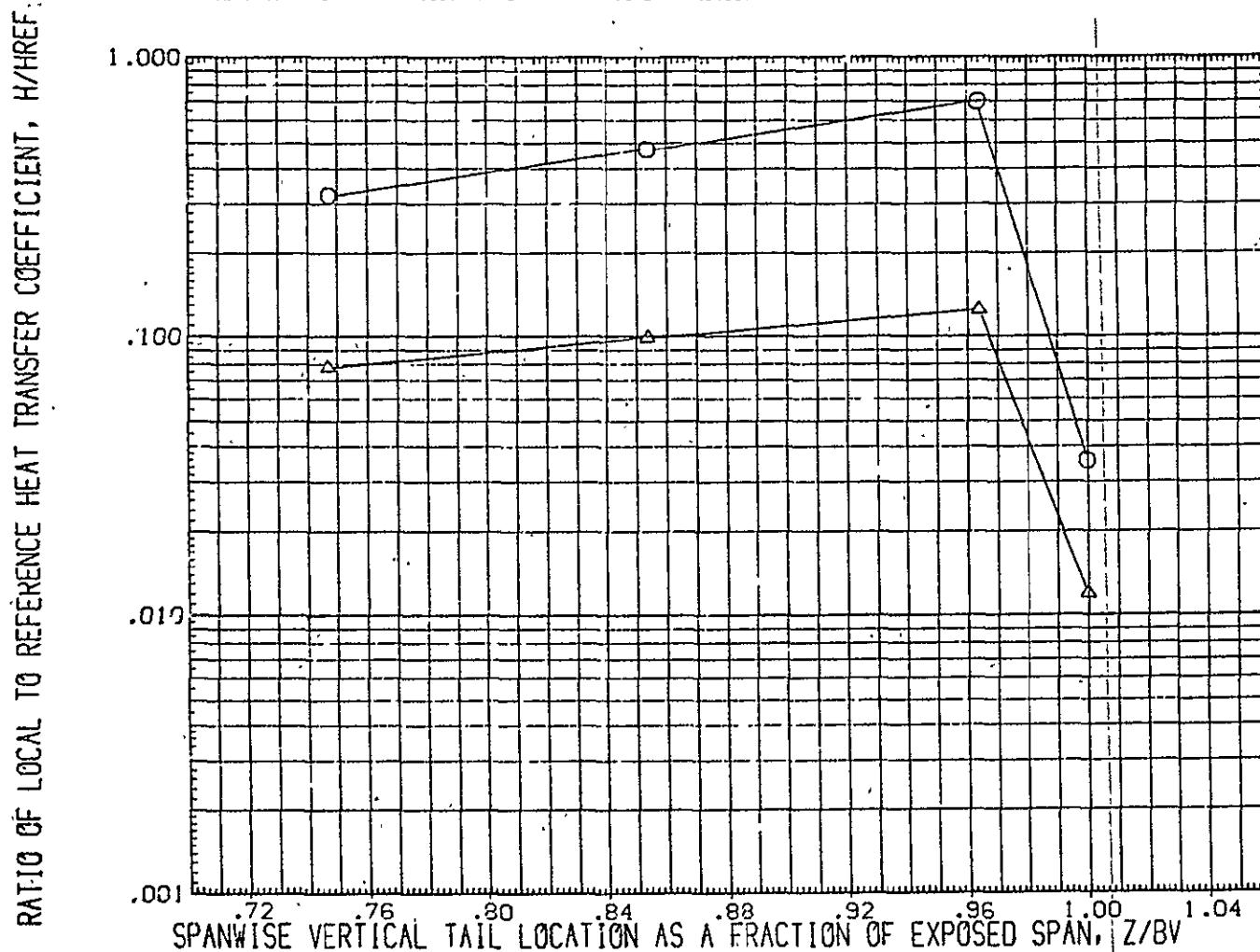


FIG. 20 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$
MACH = 6.980 HAW/HT = 1.000 GAGENO = 40.000 PAGE 510

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	GH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	.000	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	GH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000

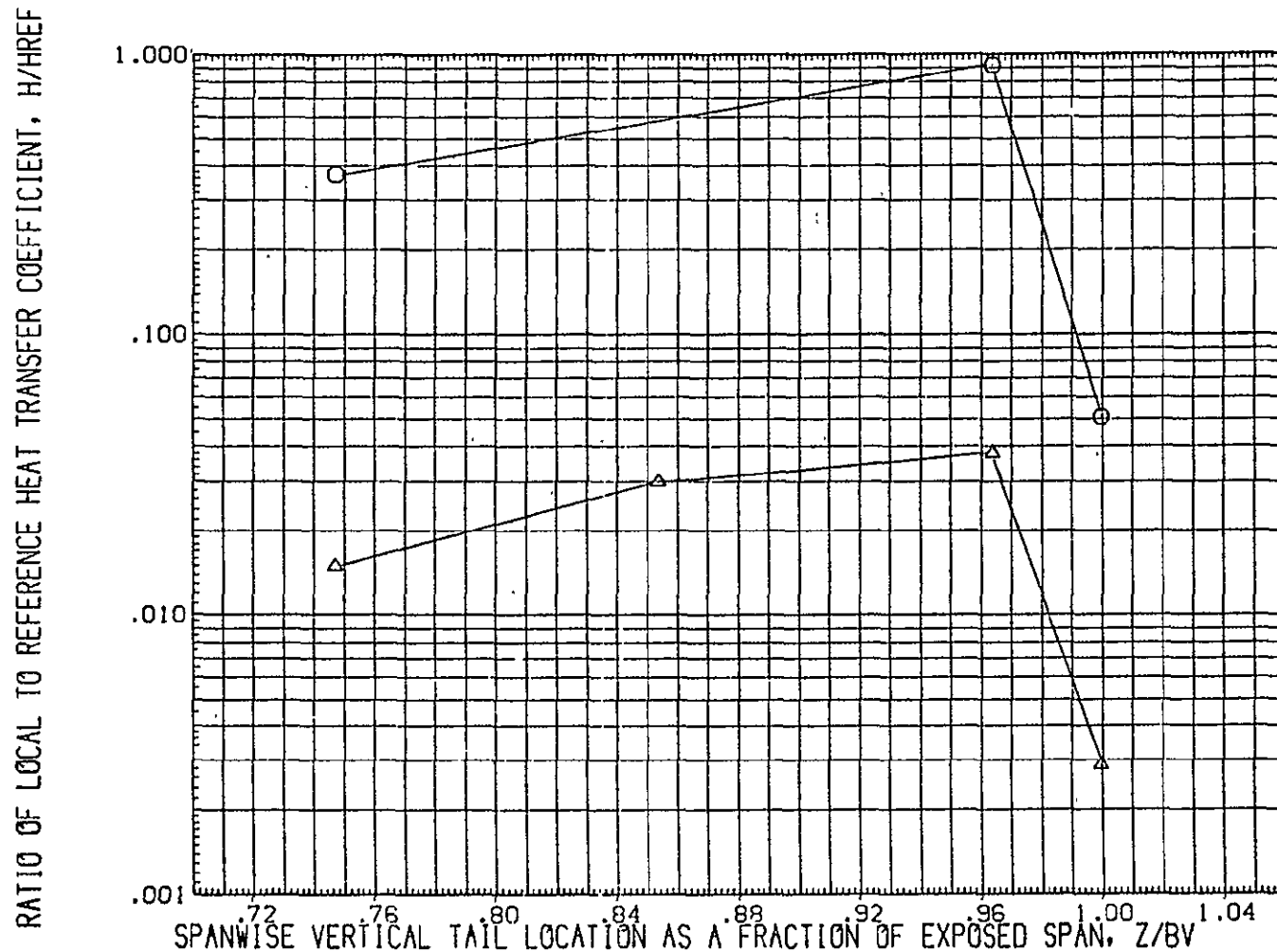


FIG. 20 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER RN/L1

MACH = 16.040 HAW/HT= .850 GAGENO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0	VERTICAL	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0	VERTICAL	25.000

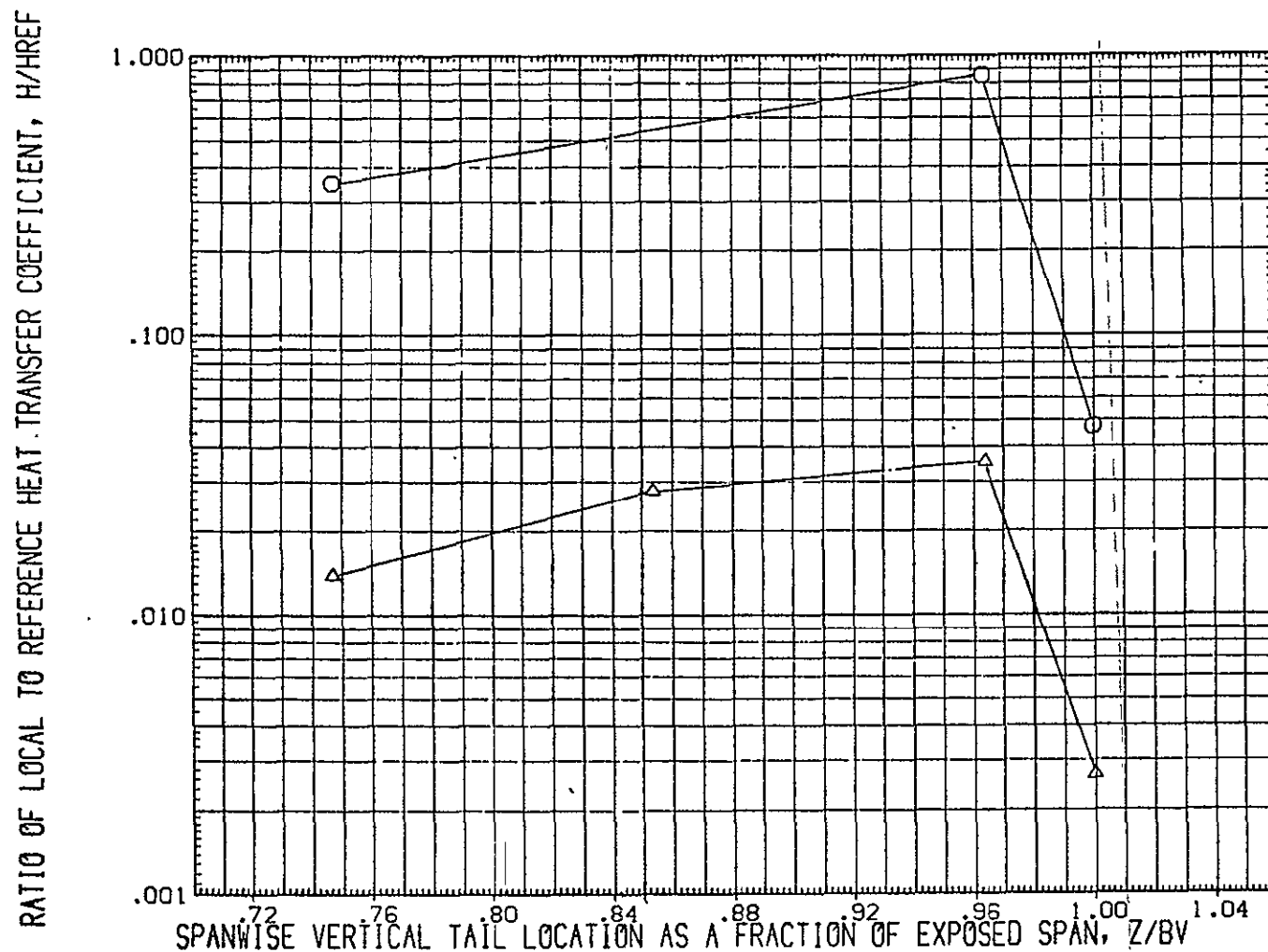


FIG. 20 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER RN/L1

MACH = 16.040 HAW/HT= .900 GAGENO= 40.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0	VERTICAL	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0	VERTICAL	25.000

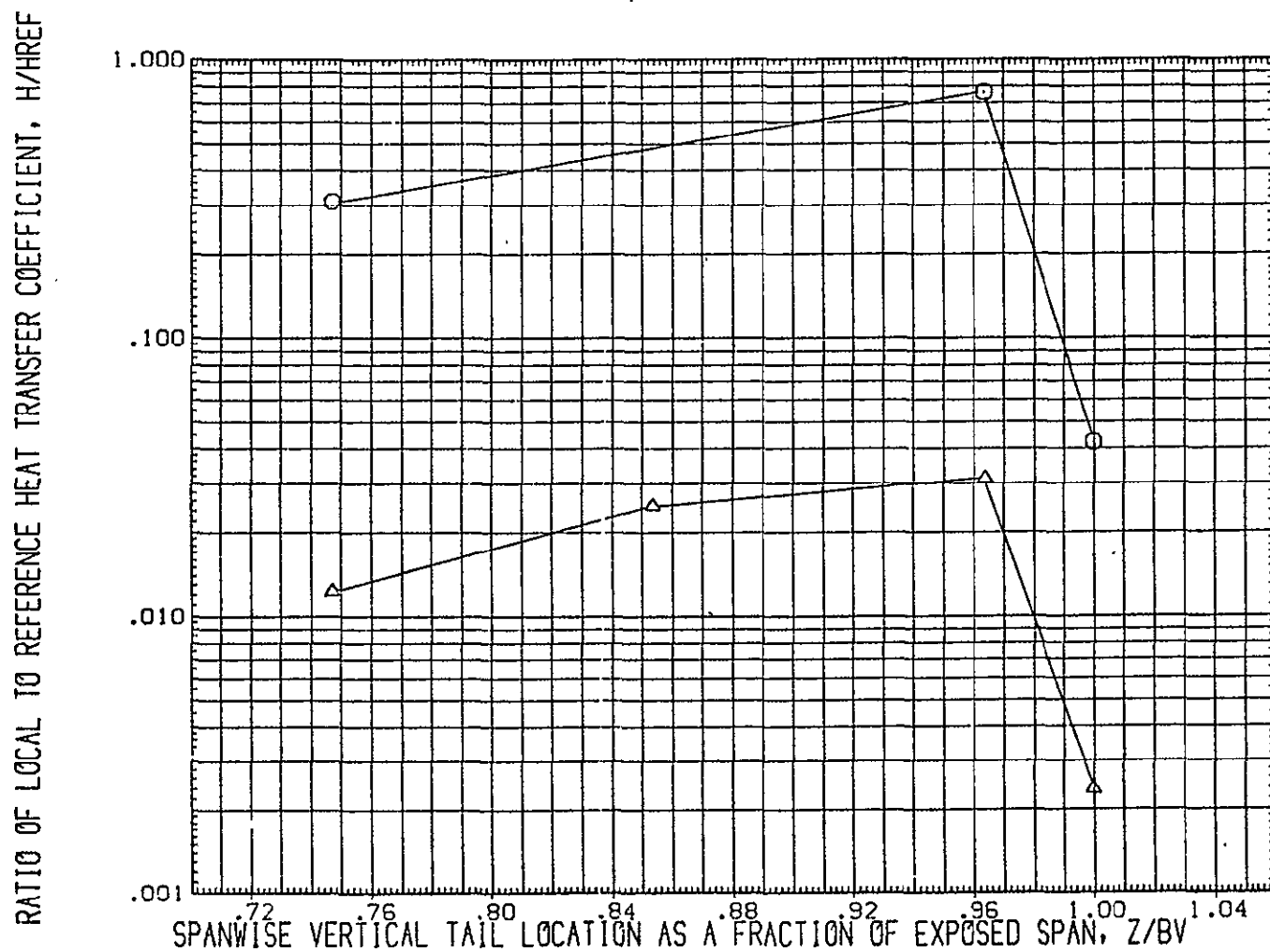


FIG. 20 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 16.040 HAW/HT= 1.000 GAGENO= 40.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0	VERTICAL	.000
(RUGV08)	DATA NOT AVAILABLE		.000
(RUGV09)	OH12/1H21 (CAL HST 173-100) 37 0	VERTICAL	.000
(RUGV10)	DATA NOT AVAILABLE		.000

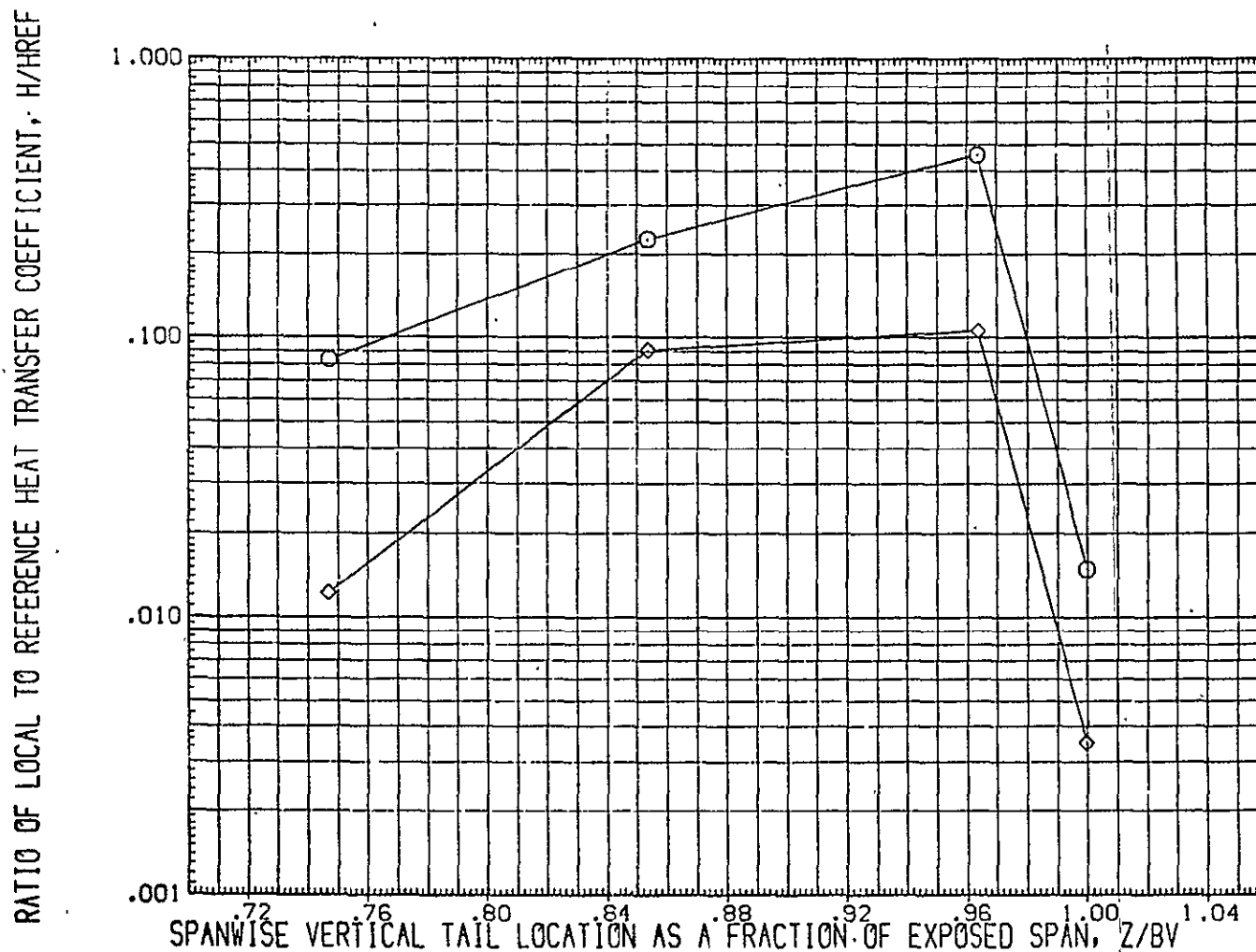


FIG. 20 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER RN/L_1

MACH = 18.330 HAW/HT = .850 GAGEND = 40.000

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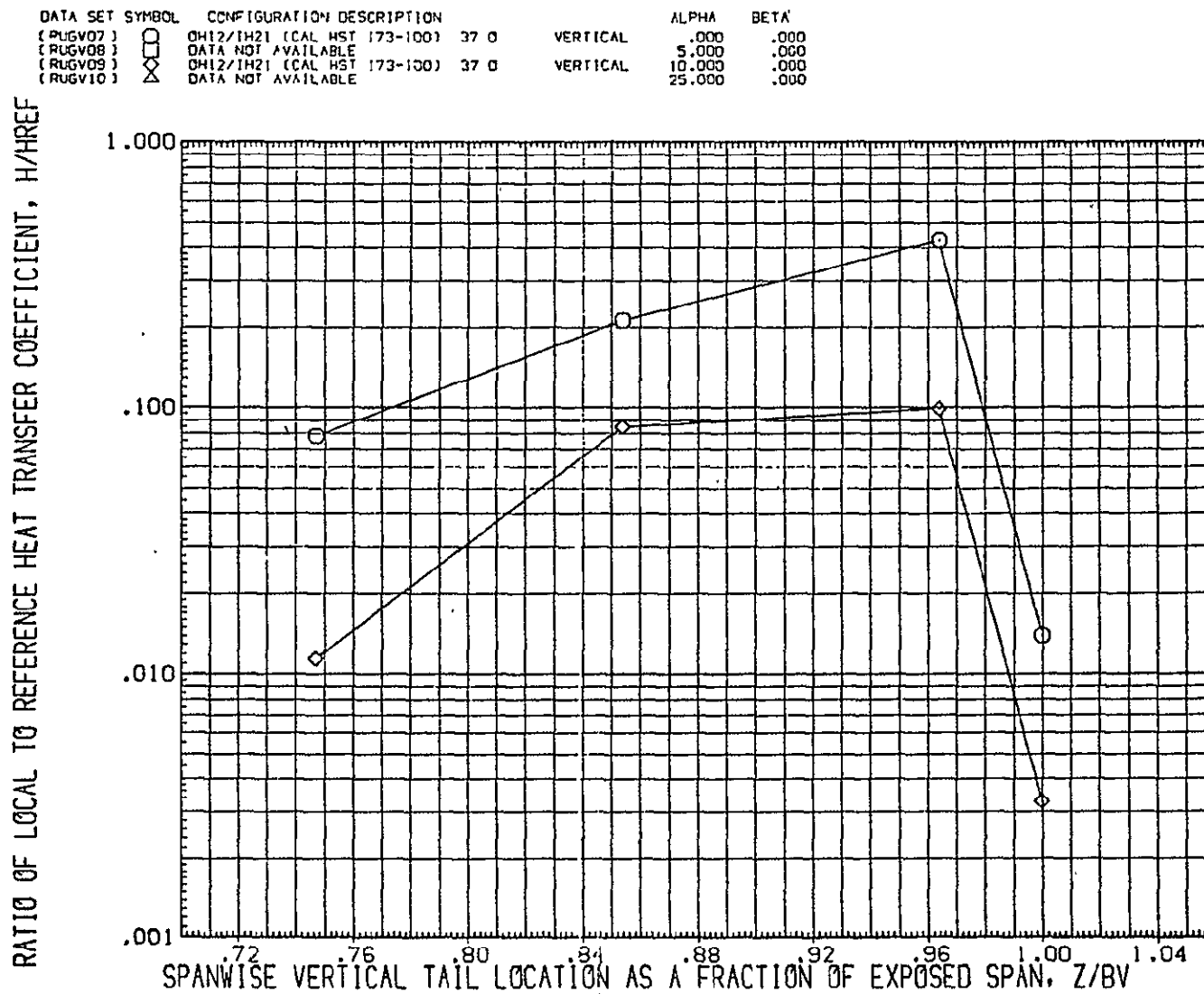


FIG. 20 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 18.330 HAW/HT= .900 GAGENO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/H21 (CAL HST 173-100) 37 0	VERTICAL	.000
(RUGV08)	DATA NOT AVAILABLE	5.000	.000
(RUGV09)	OH12/H21 (CAL HST 173-100) 37 0	VERTICAL	10.000
(RUGV10)	DATA NOT AVAILABLE	25.000	.000

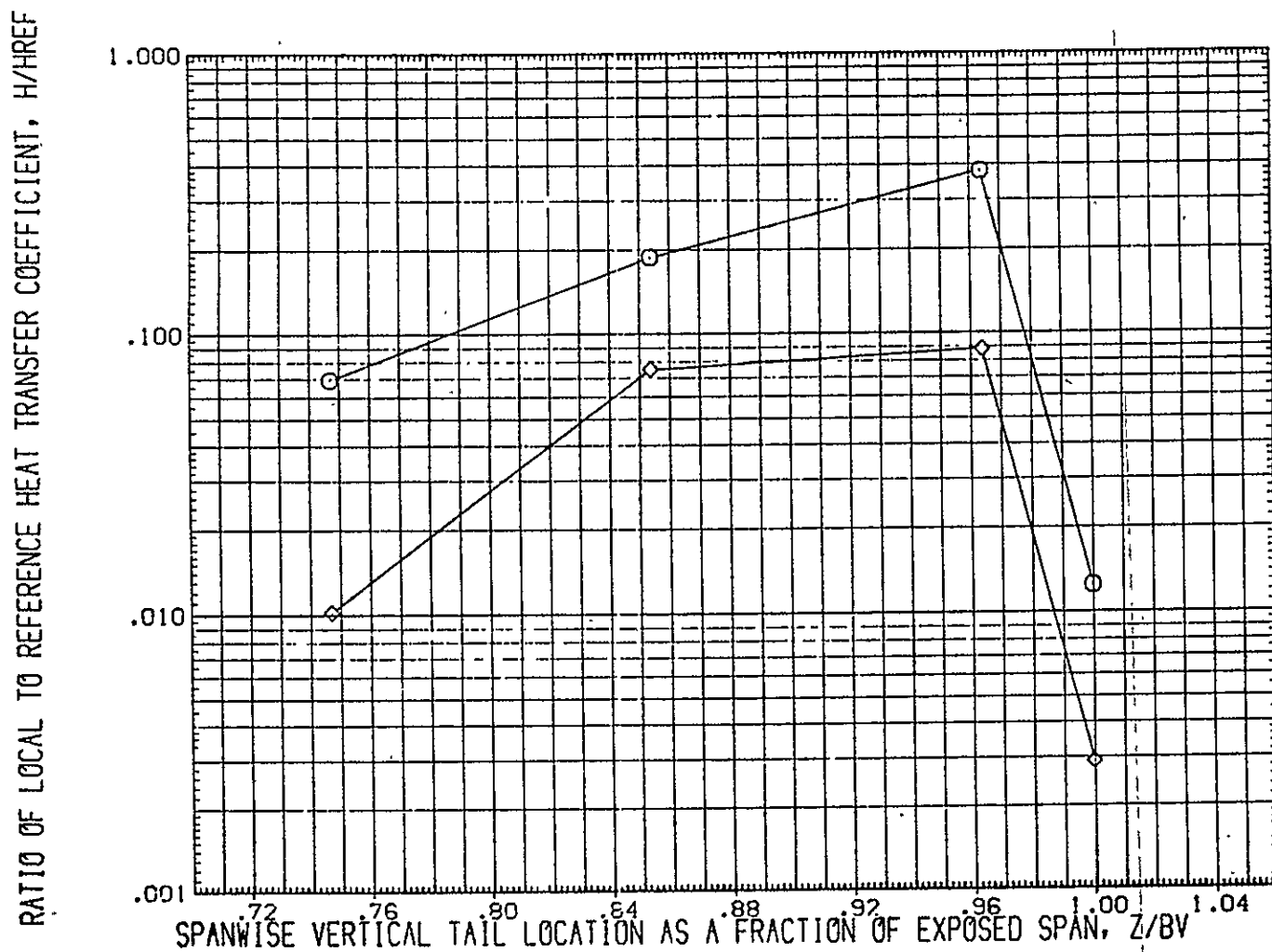


FIG. 20 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER RN/L_1

MACH = 18.330 HAW/HT= 1.000 GAGENO= 40.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	.000	.000
(RUGV08)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000

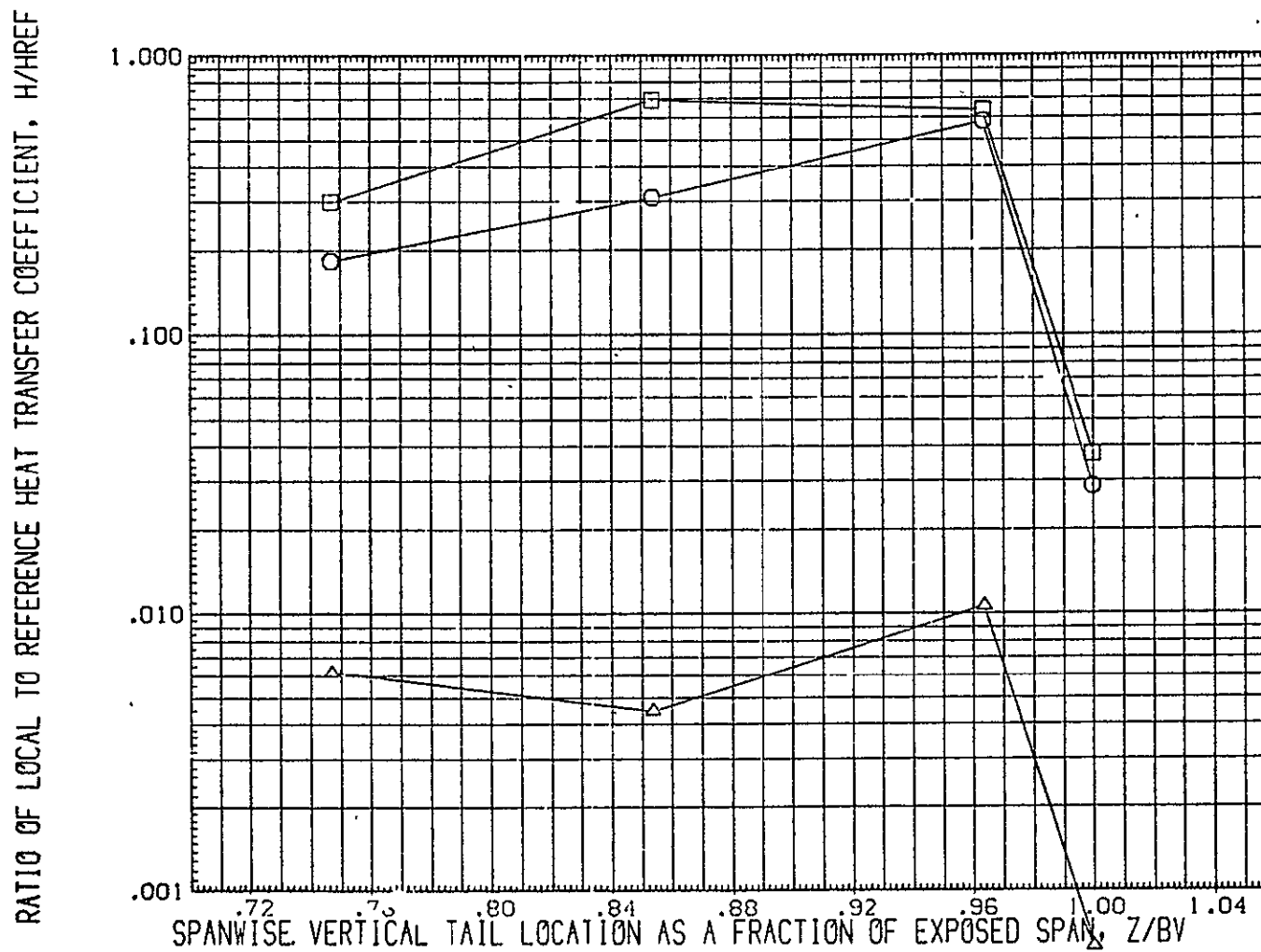


FIG. 20 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER RN/L1

MACH = 19.180 HAW/HT = .850 GAGENO = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	.000	.000
(RUGV08)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000

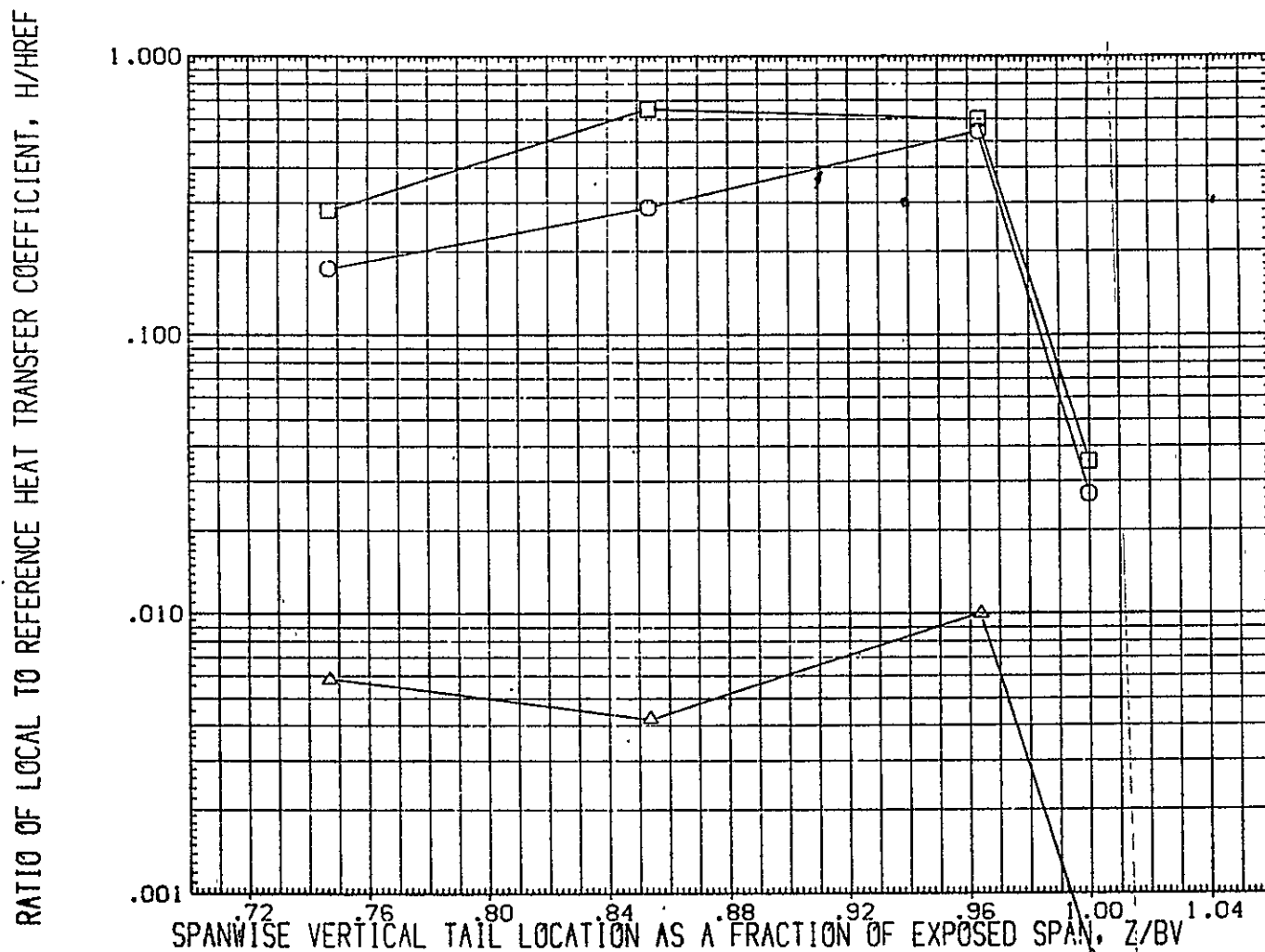


FIG. 20 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER, $RN/L1$

MACH = 19.180 HAW/HT = .900 GAGENO = 40.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	.000	.000
(RUGV08)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	5.000	.000
(RUGV09)	DATA NOT AVAILABLE	10.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000

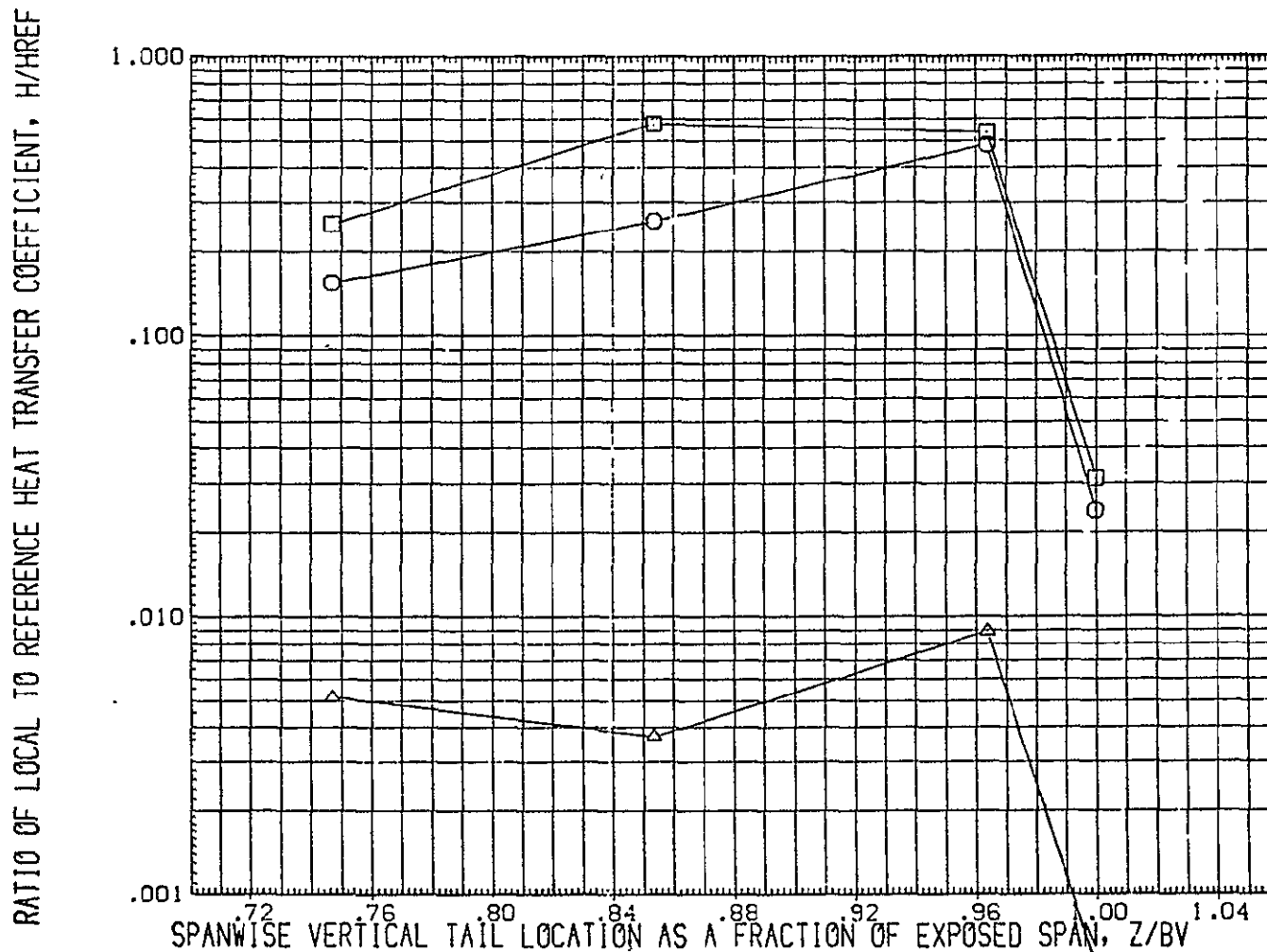


FIG. 20 EFFECT OF LOW ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER RN/L1

MACH = 19.180 HAW/HT= 1.000 GAGENO= 40.000

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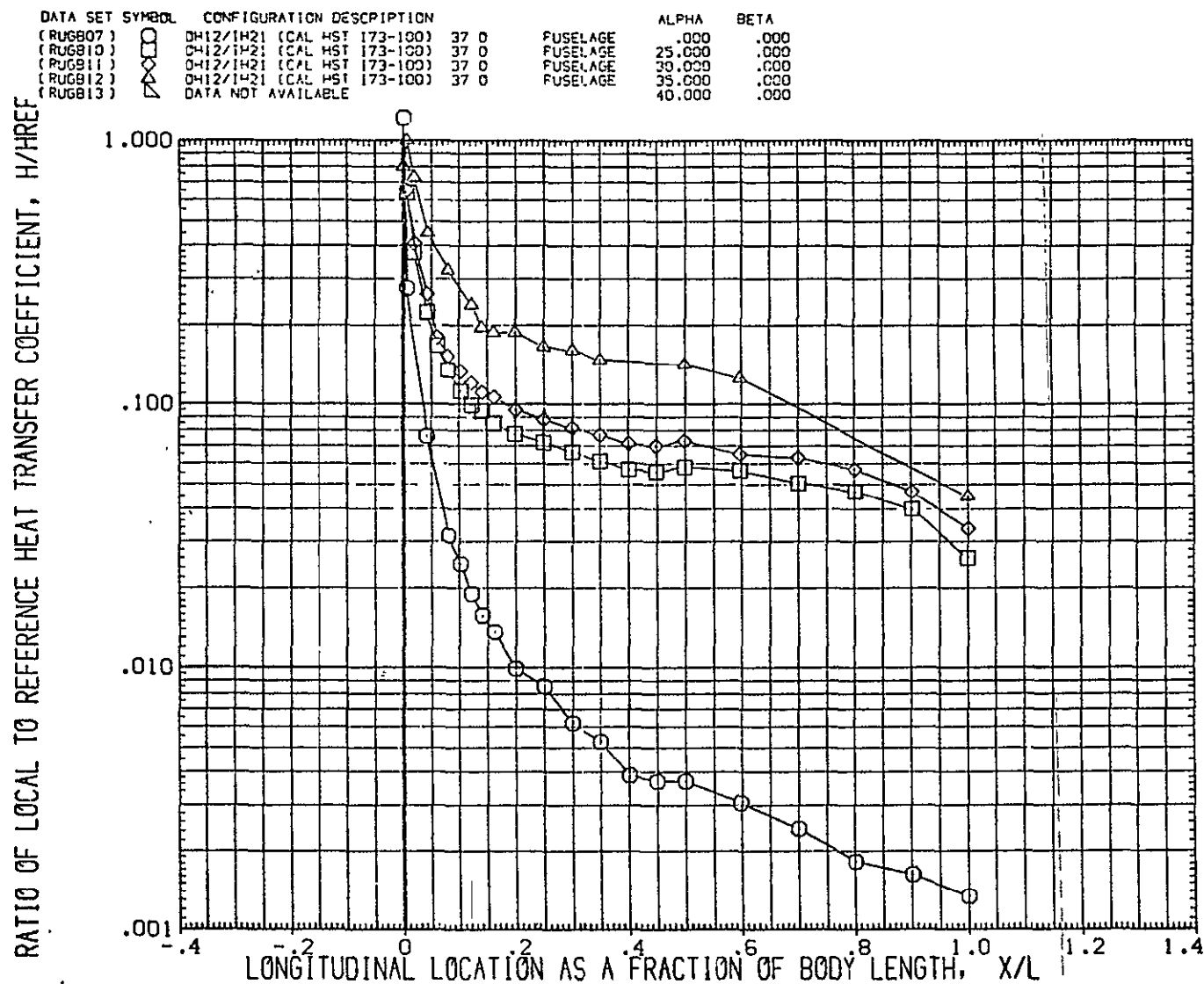


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 7.000 HAW/HT = .850 PHI = .000 PAGE 520

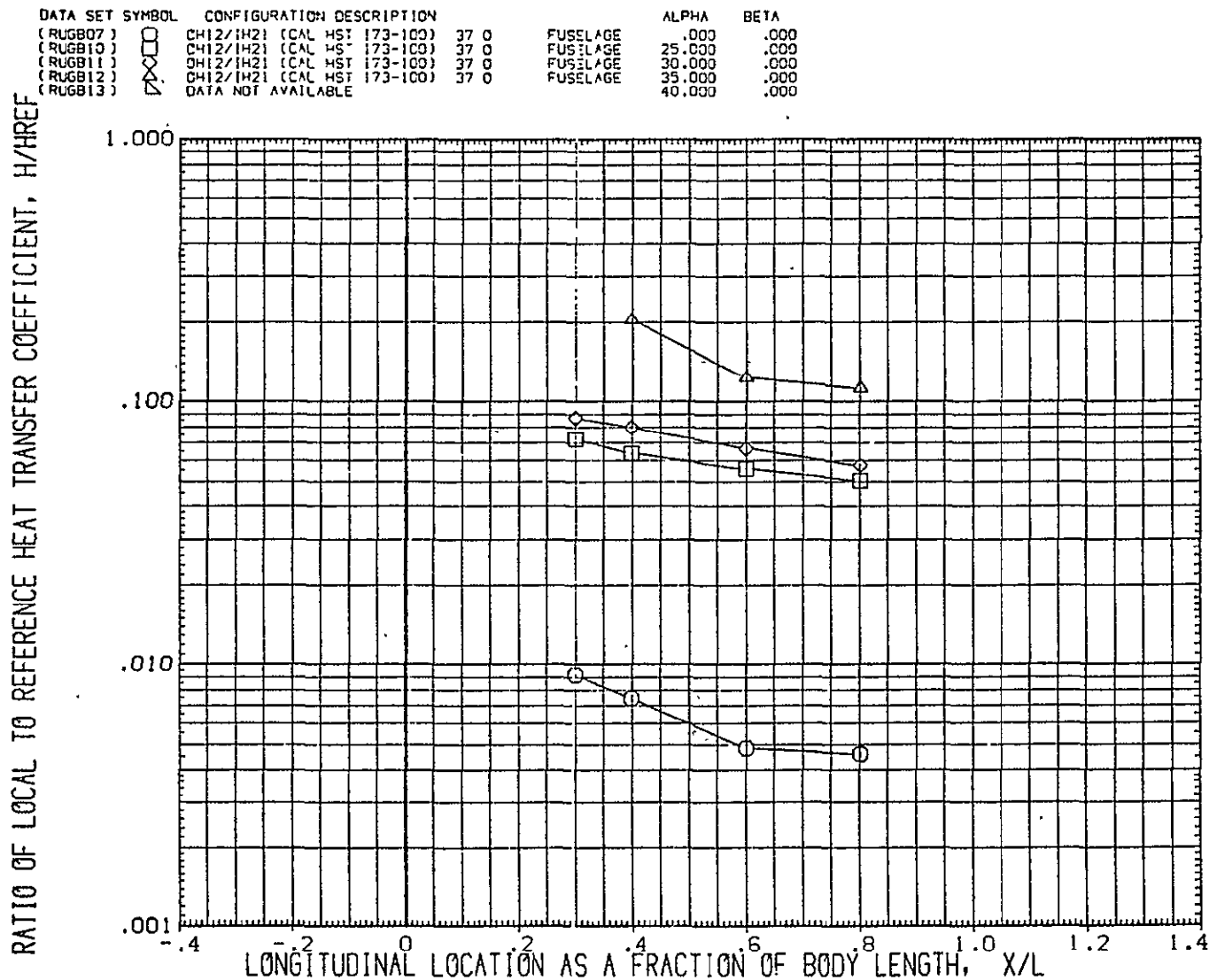


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L1
MACH = 7.000 HAW/HT = .850 PHI = 25.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	CH12/H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	CH12/H21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB12)	CH12/H21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

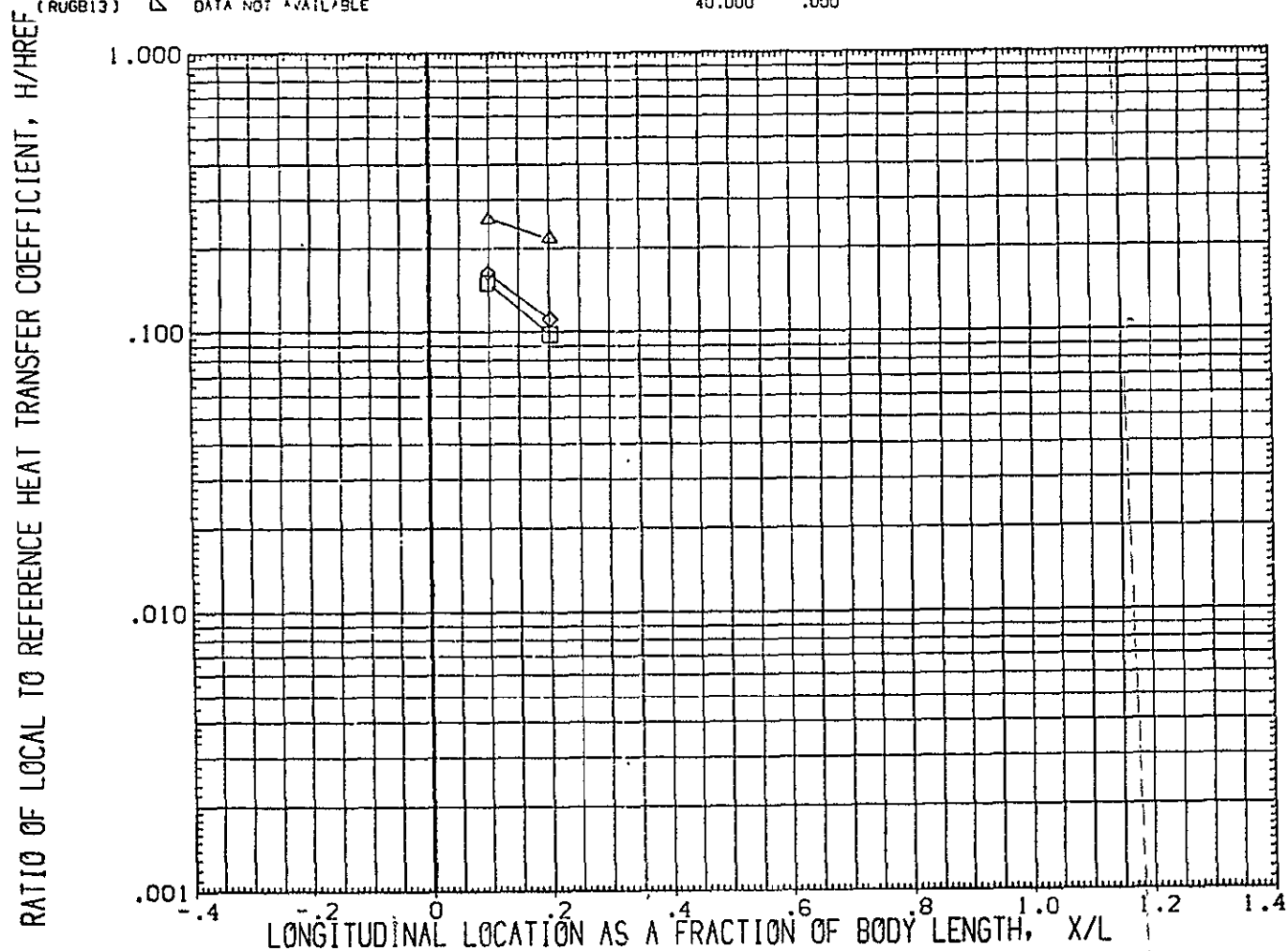


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.000 HAW/HT = .850 PHI = 30.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	BETA
(RUGB07)	○	CH12/11/21 (CAL HST 173-100)	37 °	FUSFLAGE	.000
(RUGB10)	□	CH12/11/21 (CAL HST 173-100)	37 °	FUSFLAGE	25.000
(RUGB11)	△	CH12/11/21 (CAL HST 173-100)	37 °	FUSFLAGE	30.000
(RUGB12)	◇	CH12/11/21 (CAL HST 173-100)	37 °	FUSFLAGE	35.000
(RUGB13)	×	DATA NOT AVAILABLE		FUSFLAGE	40.000

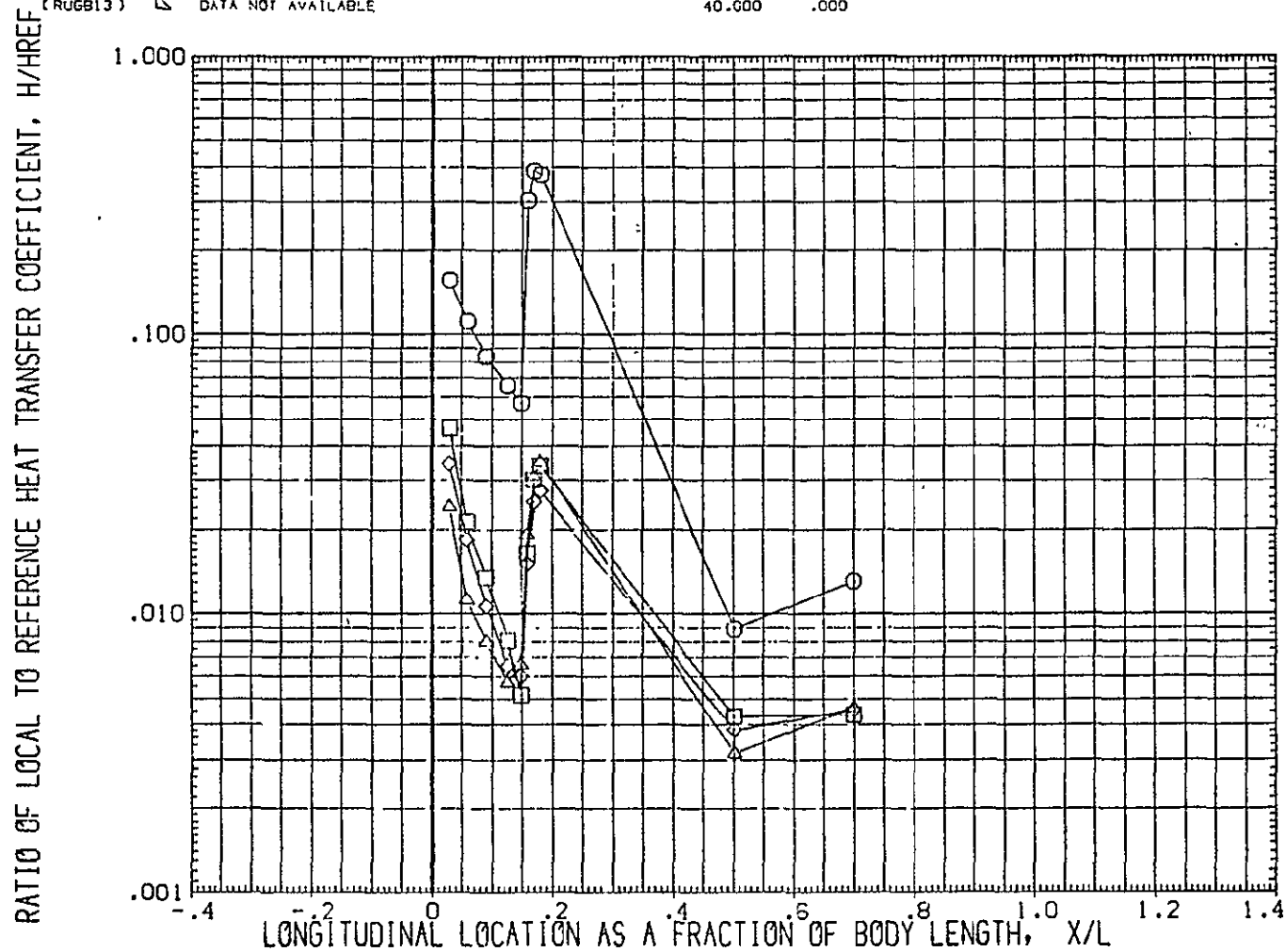


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.000 HAW/HT = .950 PHI = 180.000

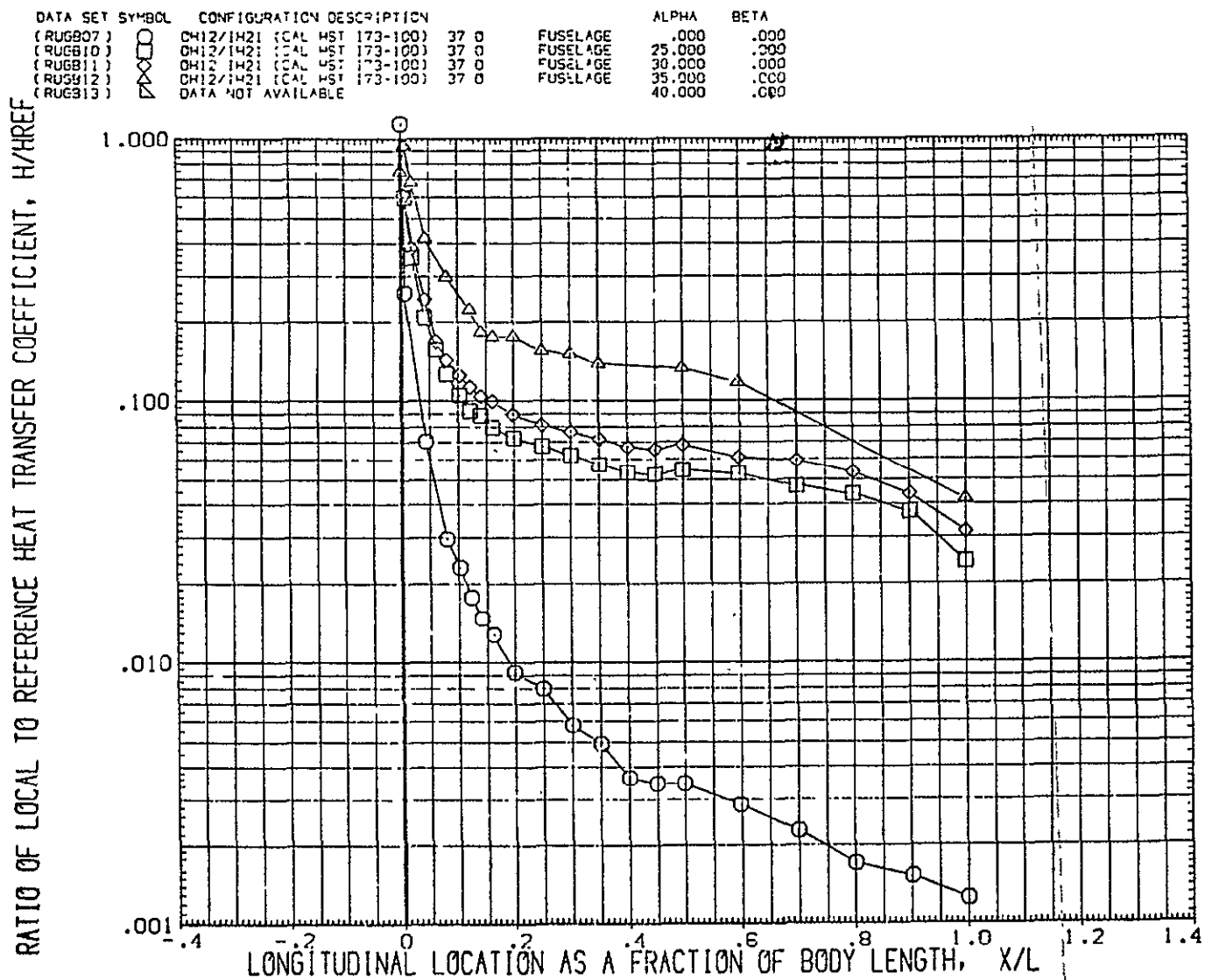


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.000 HAW/HT = .900 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	OH12/H21 (CAL HST 173-100) 37 0	FUSEL AGE	.000
(RUGB10)	OH12/H21 (CAL HST 173-100) 37 0	FUSEL AGE	25.000
(RUGB11)	OH12/H21 (CAL HST 173-100) 37 0	FUSEL AGE	30.000
(RUGB12)	OH12/H21 (CAL HST 173-100) 37 0	FUSEL AGE	35.000
(RUGB13)	DATA NOT AVAILABLE	FUSEL AGE	40.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

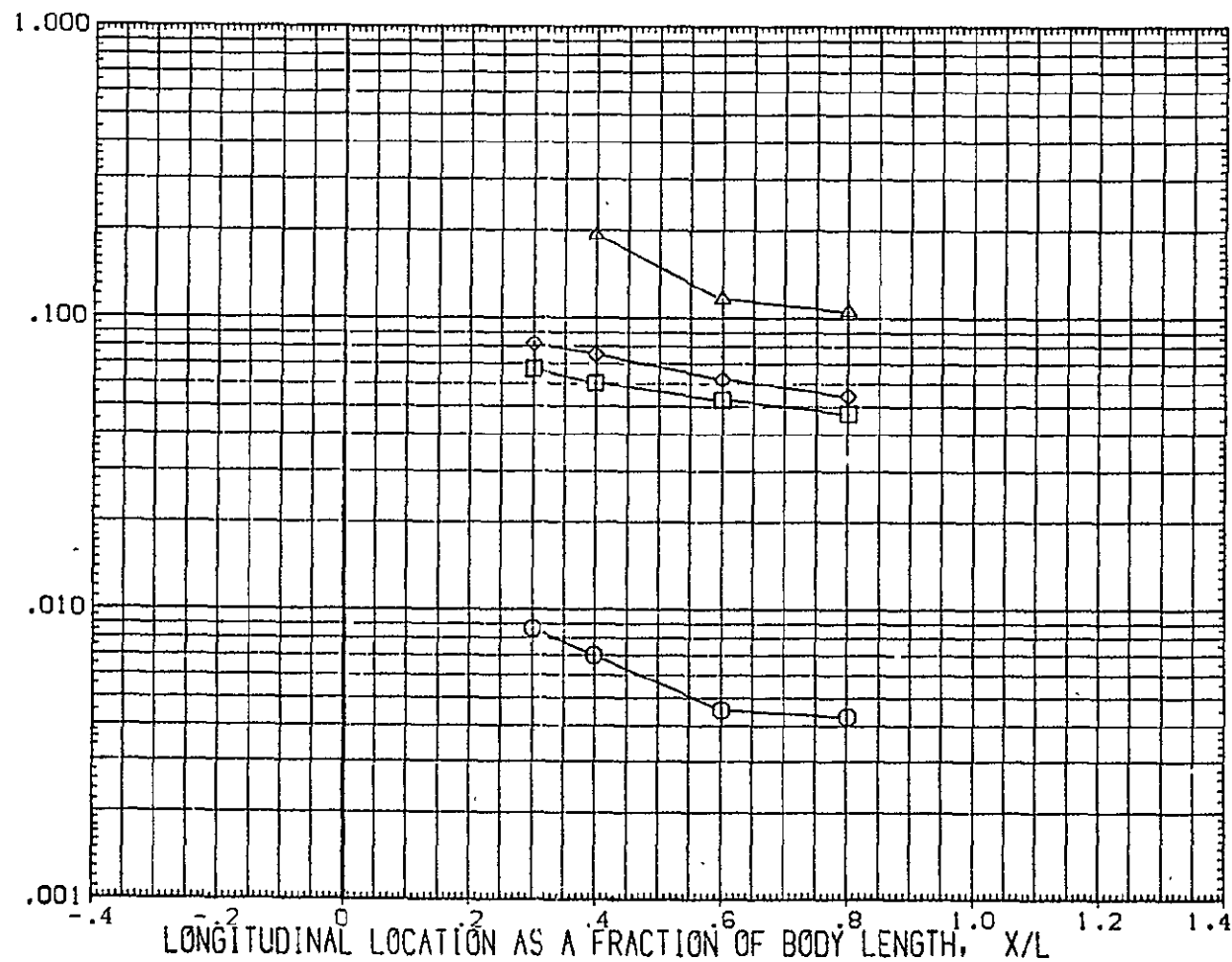


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.000 HAW/HT = .900 PHI = 25.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB08)	OH12/H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	OH12/H21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB12)	OH12/H21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

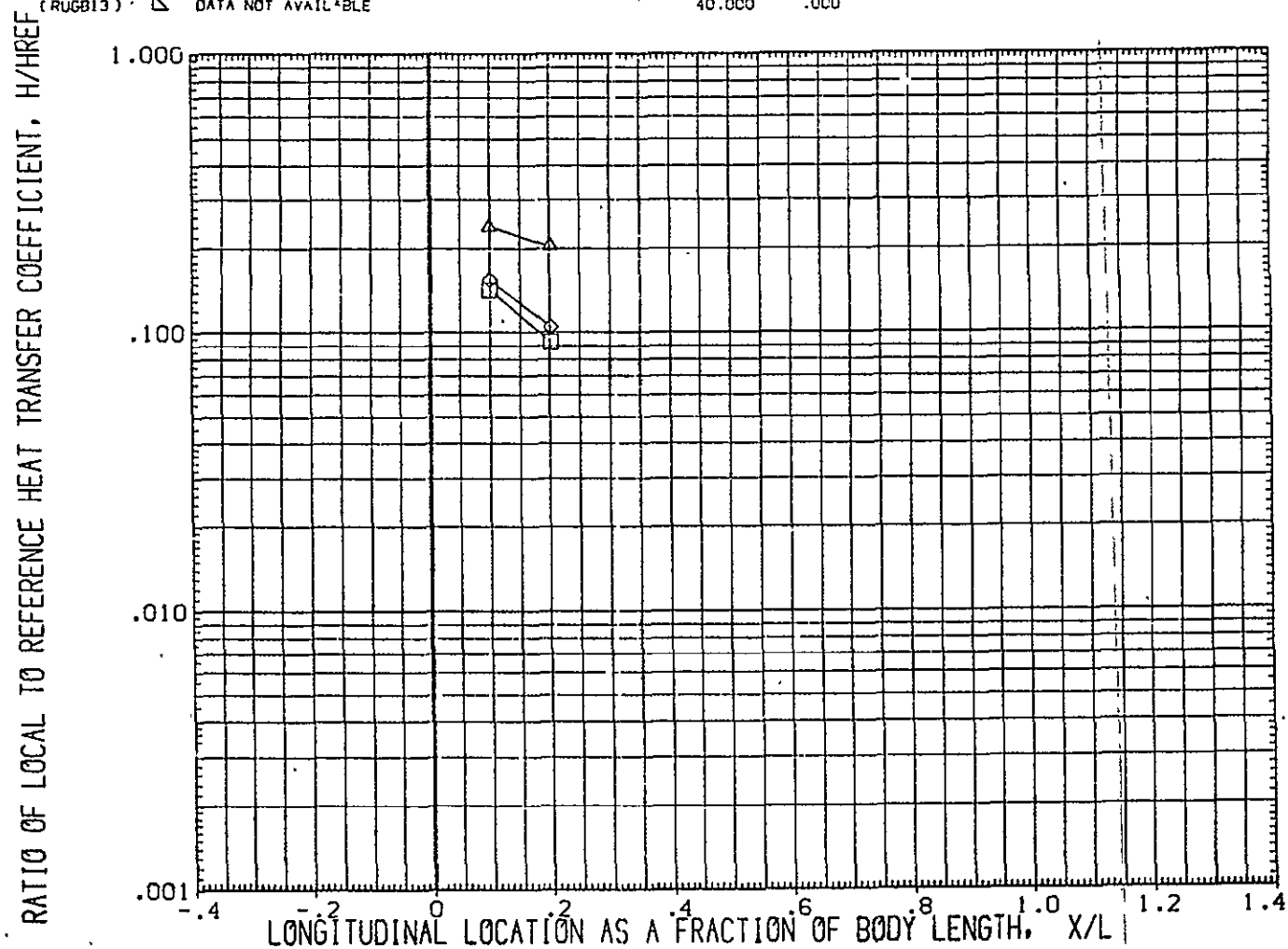


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.000 HAW/HT = .900 PHI = 30.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUG810)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	25.000
(RUG811)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	30.000
(RUG812)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	35.000
(RUG813)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	40.000
(RUG813)	DATA NOT AVAILABLE		.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

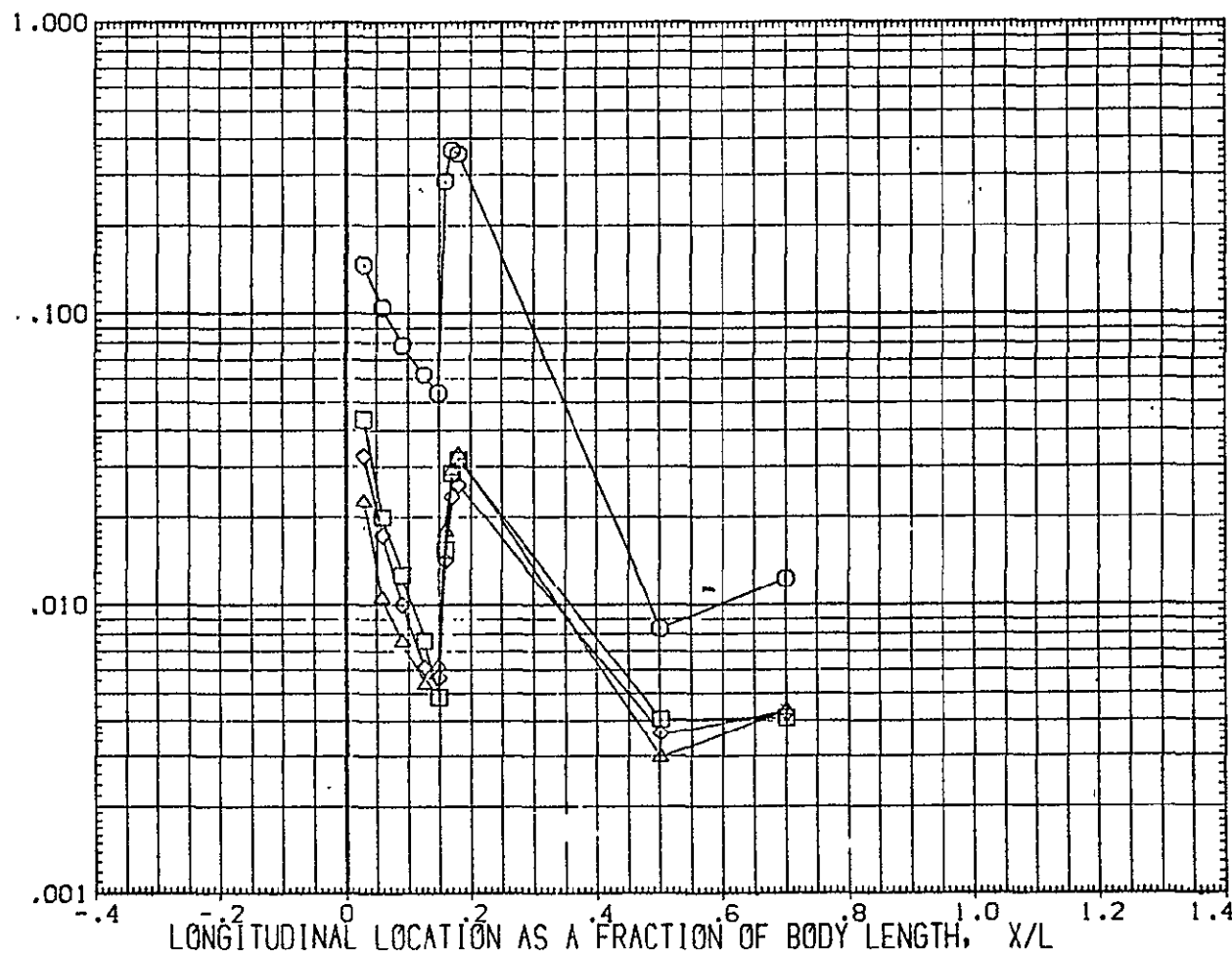


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.000 HAW/HT = .900 PHI = 180.000

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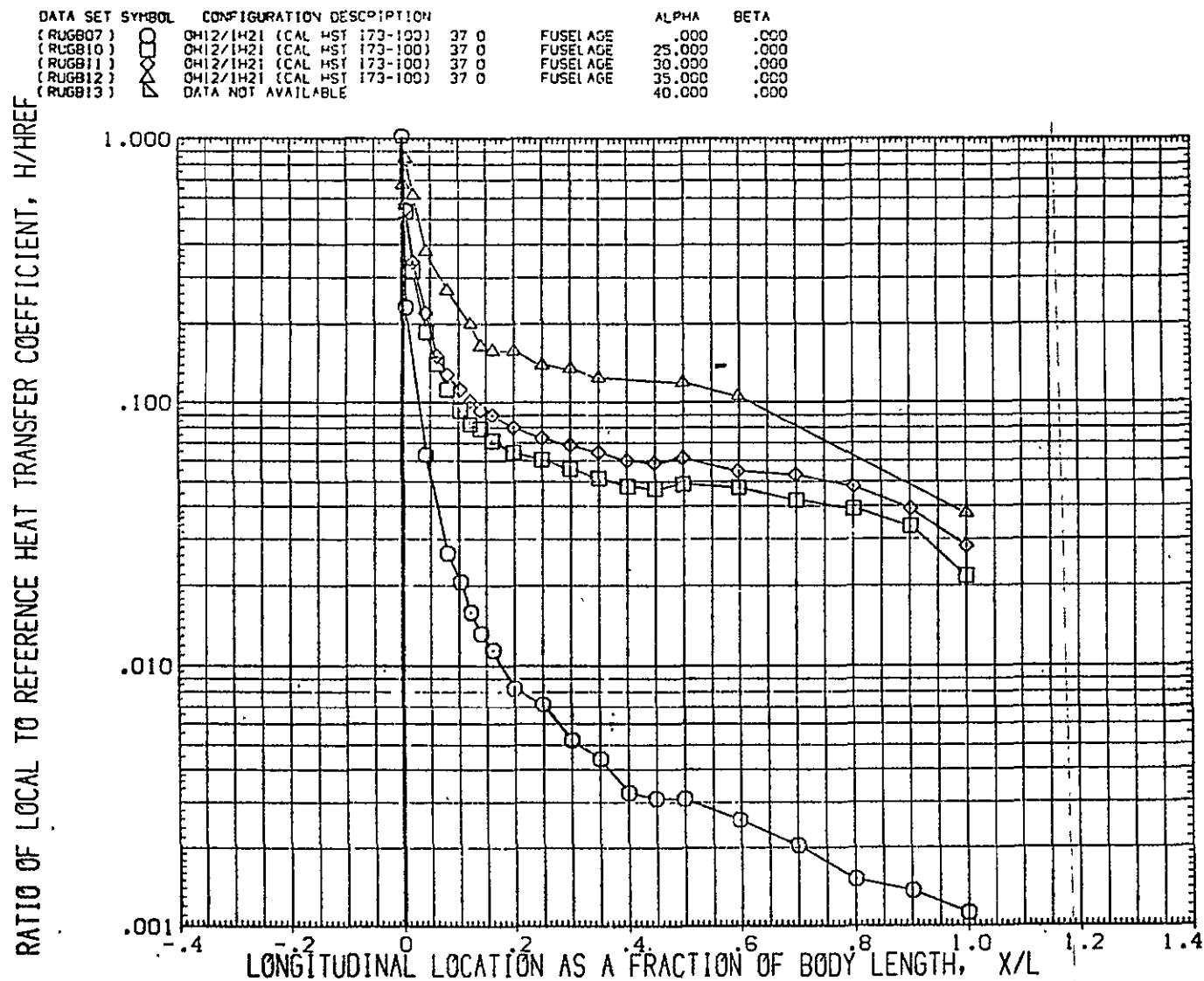


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.000 HAW/HT = 1.000 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
RUGB07	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
RUGB10	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
RUGB11	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
RUGB12	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
RUGB13	DATA NOT AVAILABLE	40.000	.000

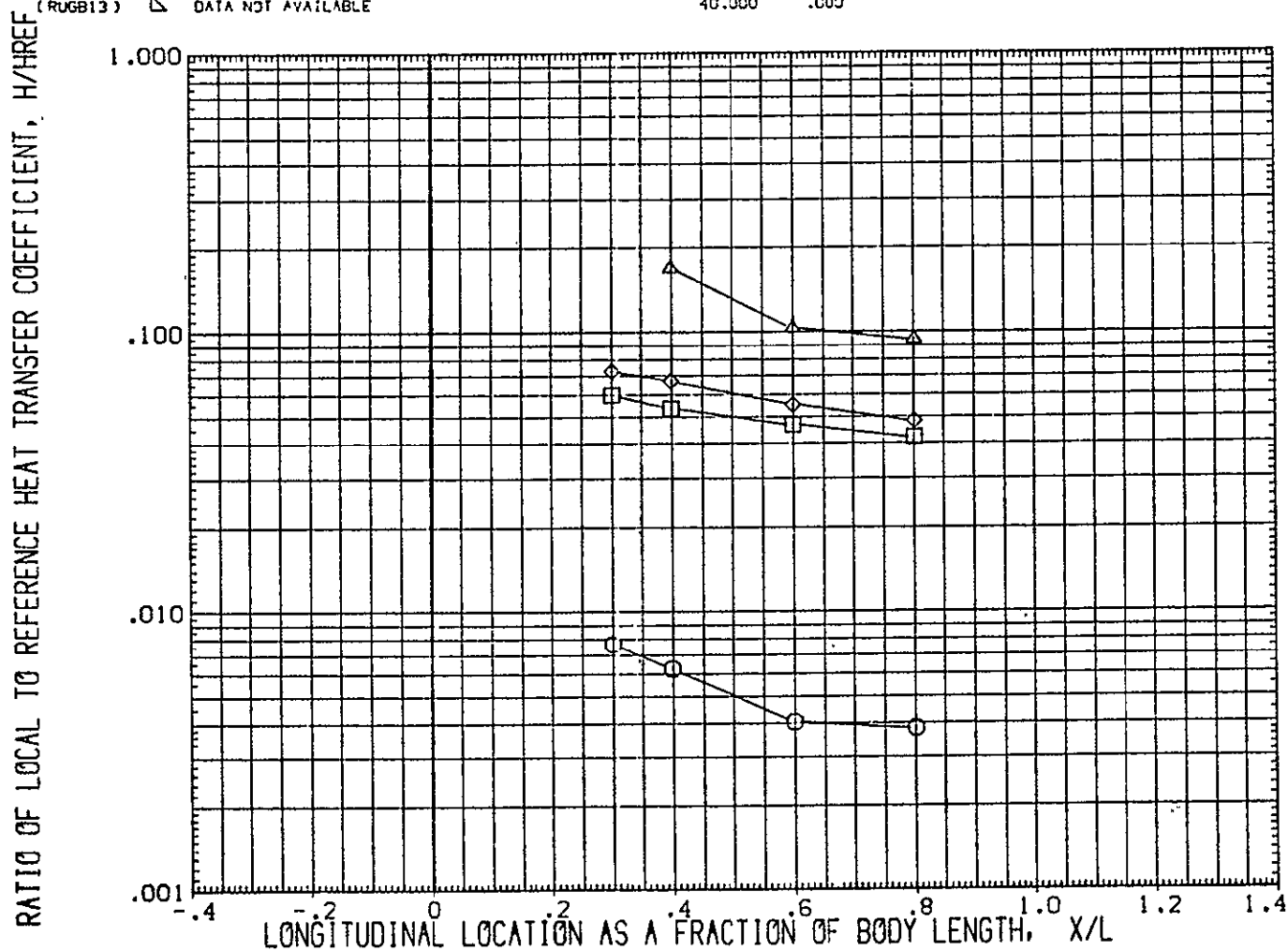


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.000 HAW/HT= 1.000 PHI = 25.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
RUG807	DATA NOT AVAILABLE	.000	.000
RUG810	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000
RUG811	OH12/1H21 (CAL HST 173-100) 37 0	30.000	.000
RUG812	OH12/1H21 (CAL HST 173-100) 37 0	35.000	.000
RUG813	DATA NOT AVAILABLE	40.000	.000

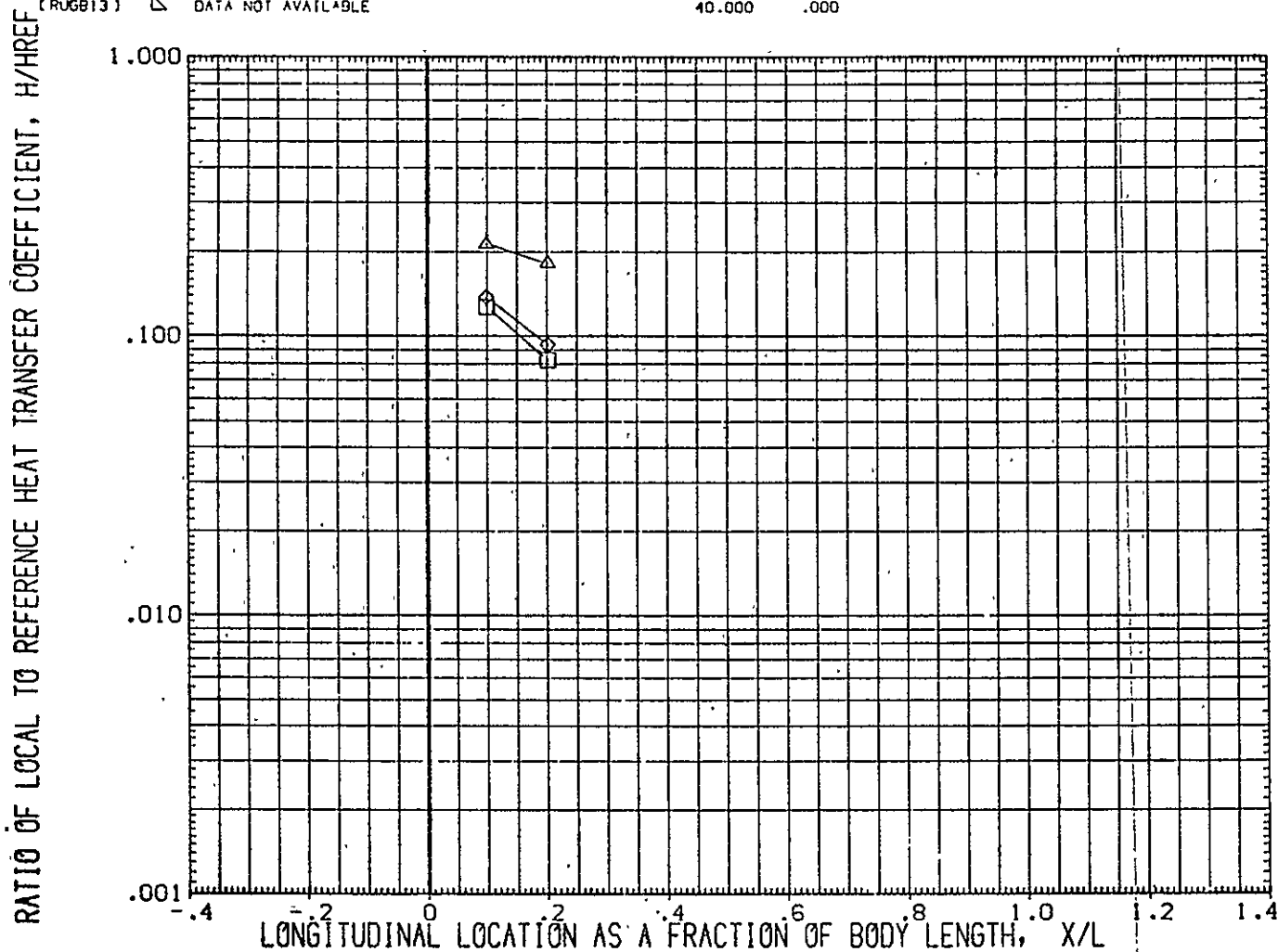


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.000 HAW/HT = 1.000 PHI = 30.000

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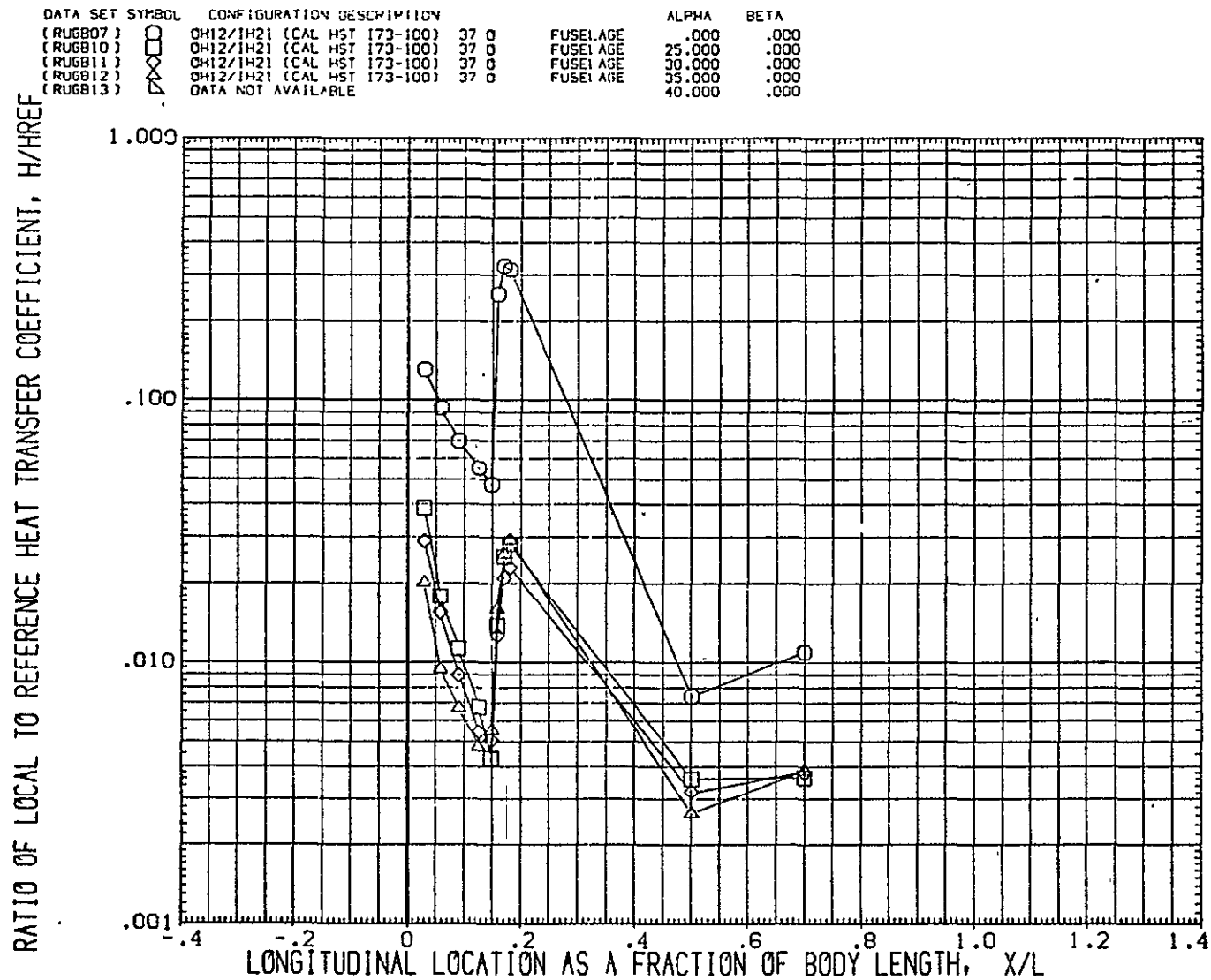


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 7.000 HAW/HT = 1.000 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OW12/1H21 (CAL HST 173-10) 37 0 FUSELAGE	25.000	.000
(RUGB11)	OW12/1H21 (CAL HST 173-10) 37 0 FUSELAGE	30.000	.000
(RUGB12)	OW12/1H21 (CAL HST 173-10) 37 0 FUSELAGE	35.000	.000
(RUGB13)	OW12/1H21 (CAL HST 173-10) 37 0 FUSELAGE	40.000	.000

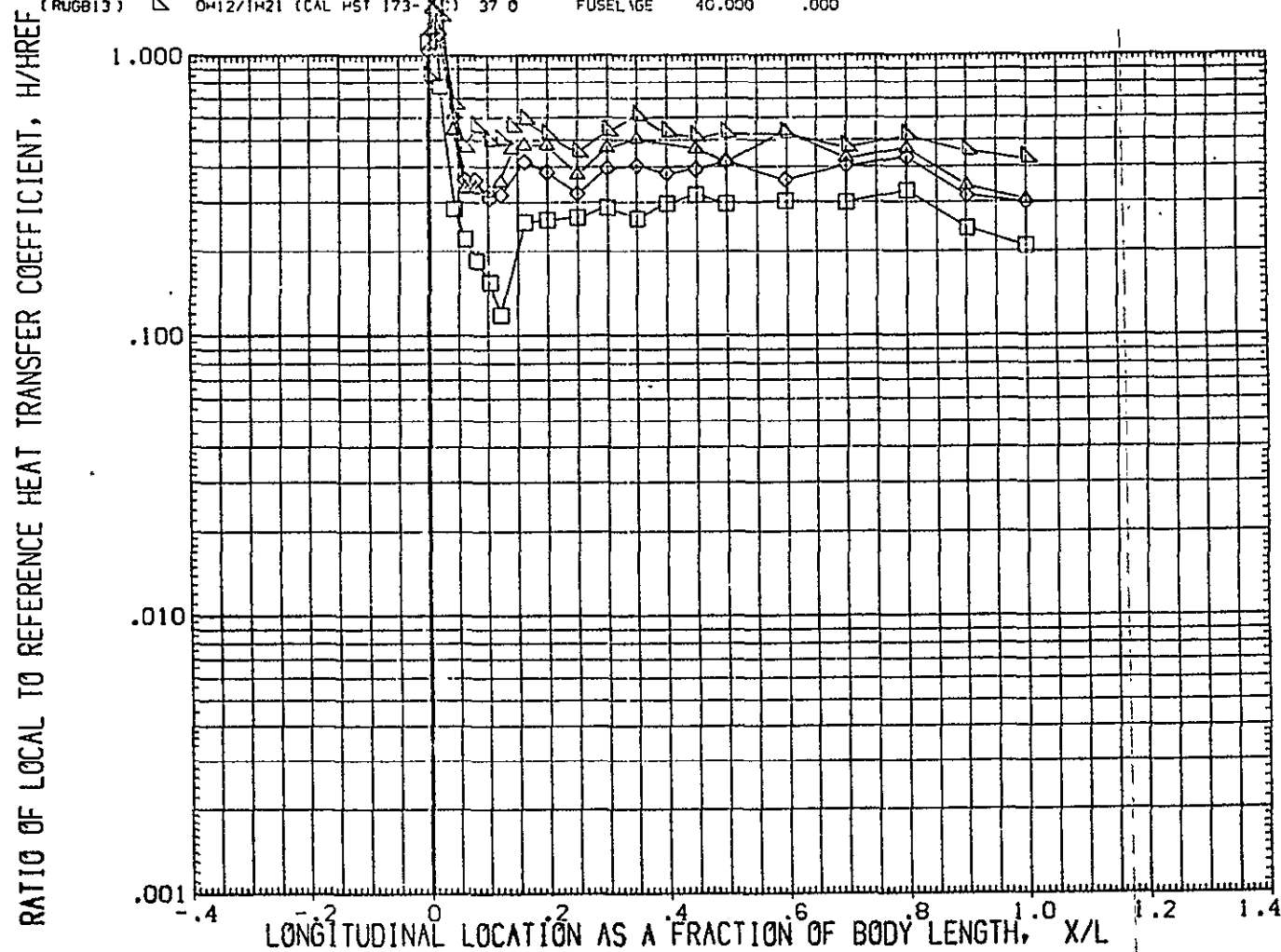


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L1

MACH = 7.900 HAW/HT = .850 PHI = .000

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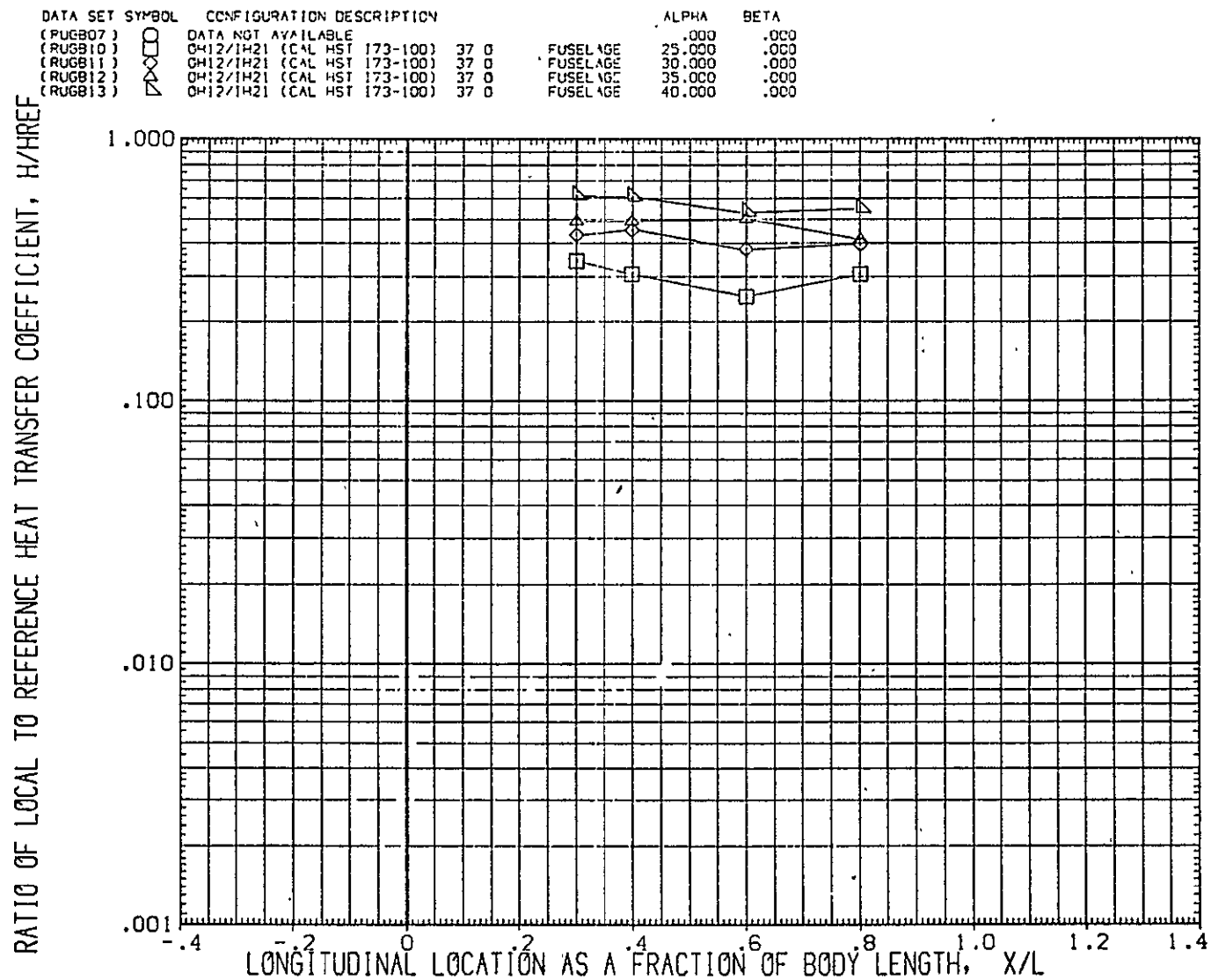


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 7.900 HAW/HT = .850 PHI = 25.000 PAGE 533

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	CH12/H21 (CAL HST 173-100) 37 0	25.000	.000
(RUGB11)	CH12/H21 (CAL HST 173-100) 37 0	30.000	.000
(RUGB12)	CH12/H21 (CAL HST 173-100) 37 0	35.000	.000
(RUGB13)	CH12/H21 (CAL HST 173-100) 37 0	40.000	.000

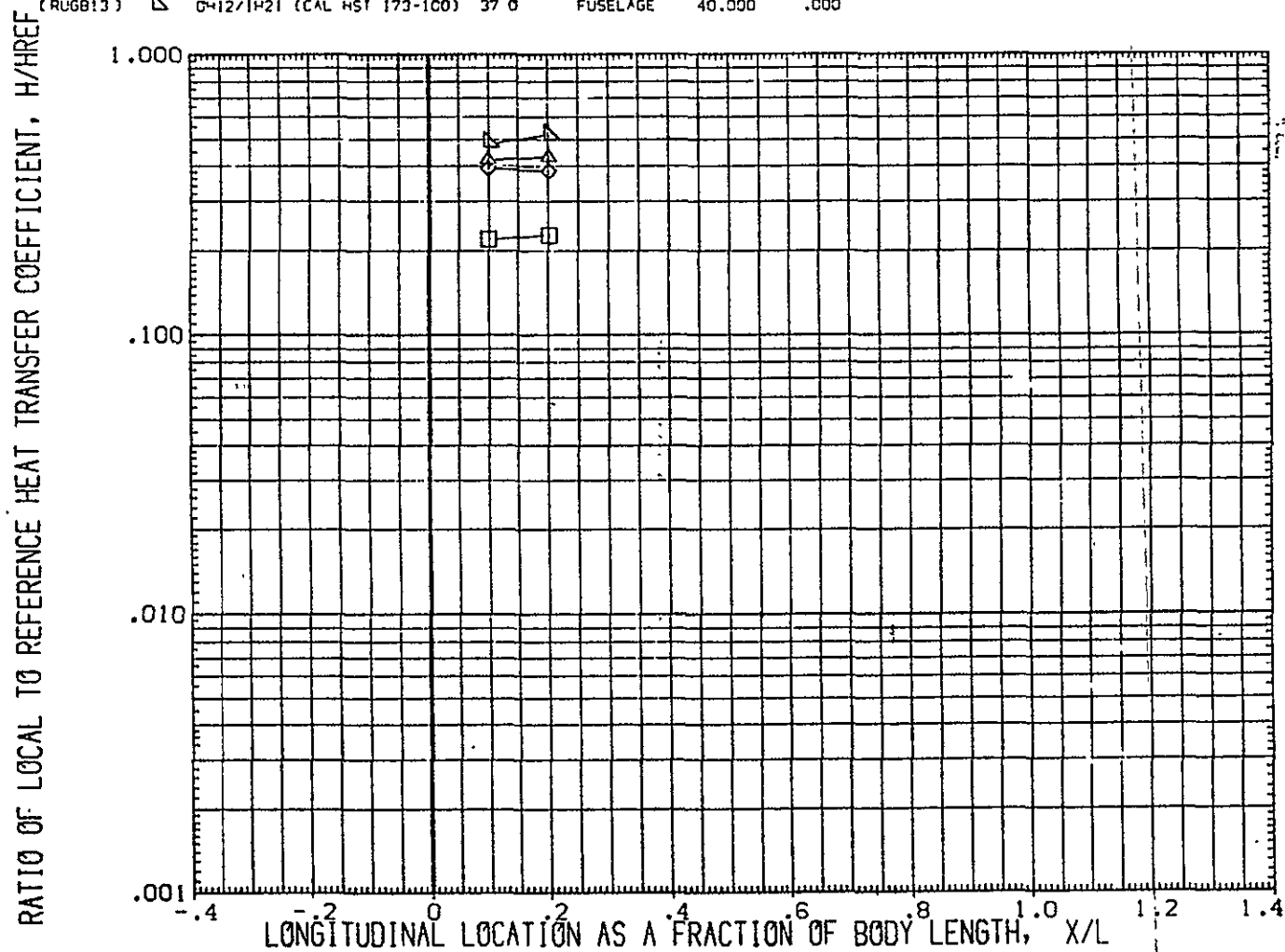


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = .850 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	CH12/1H21 (CAL HST 173-100)	25.000	.000
(RUGB11)	CH12/1H21 (CAL HST 173-100)	30.000	.000
(RUGB12)	CH12/1H21 (CAL 1-ST 173-100)	35.000	.000
(RUGB13)	CH12/1H21 (CAL HST 173-100)	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

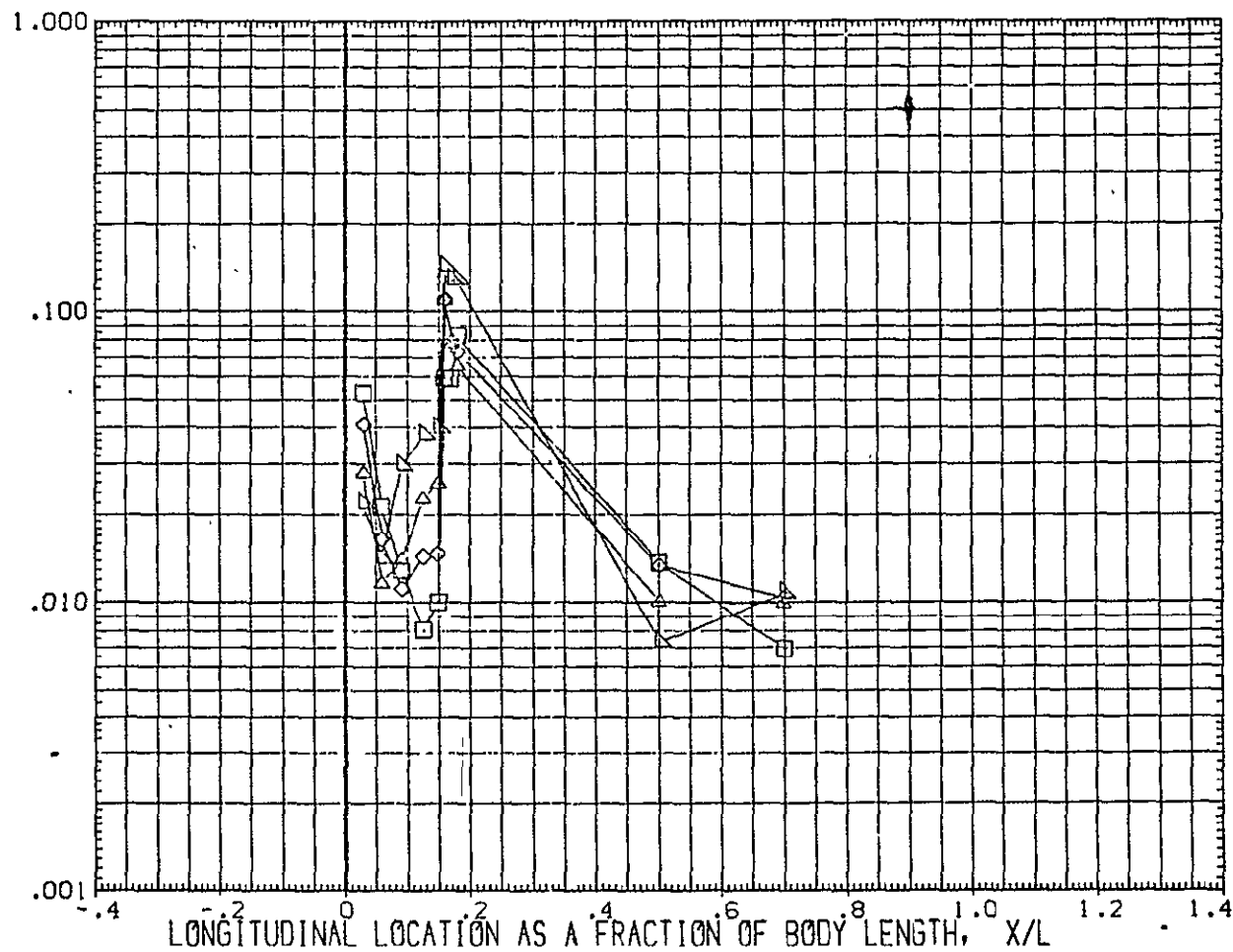


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = .850 PHI = 180.000

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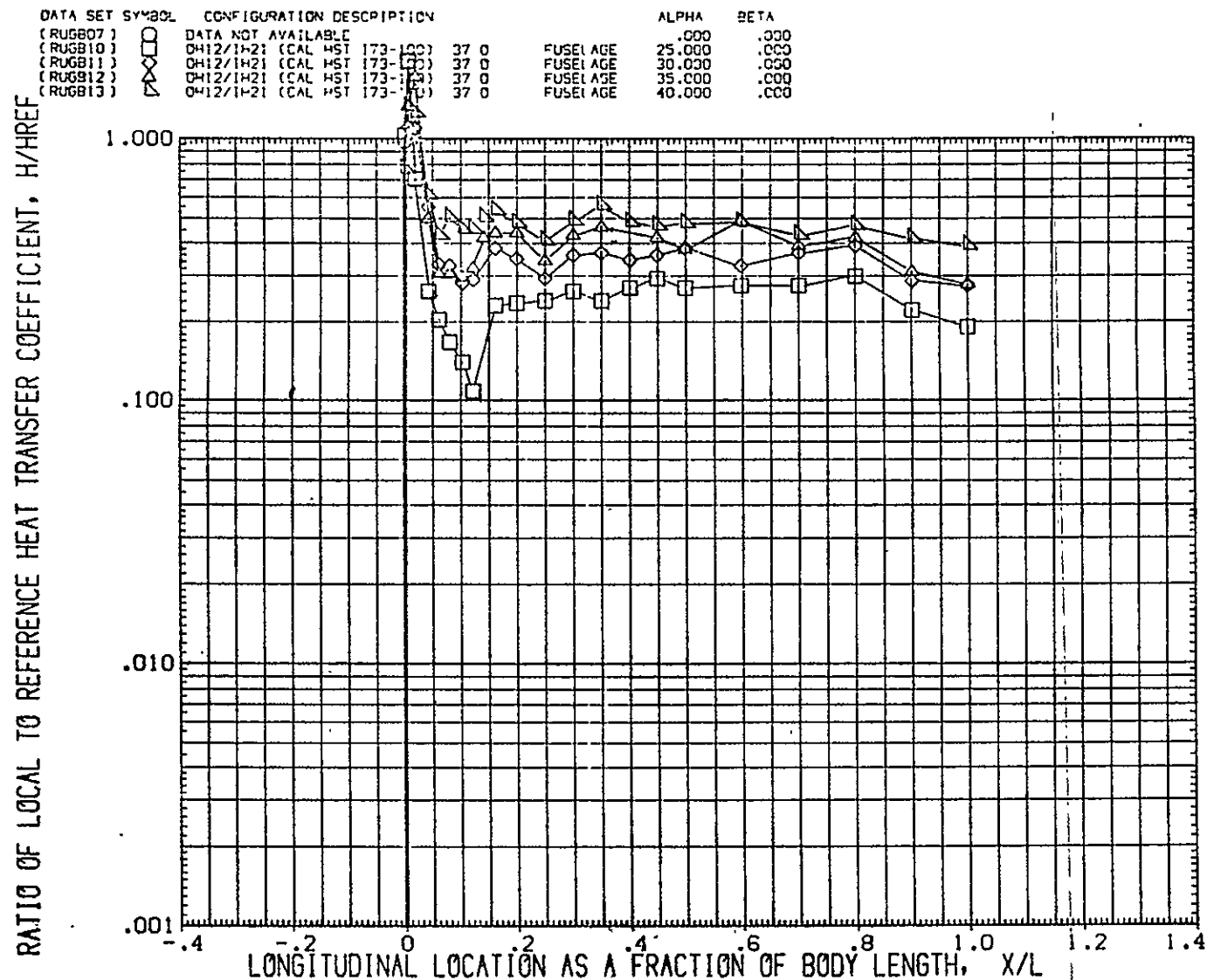


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = .900 PHI = .000

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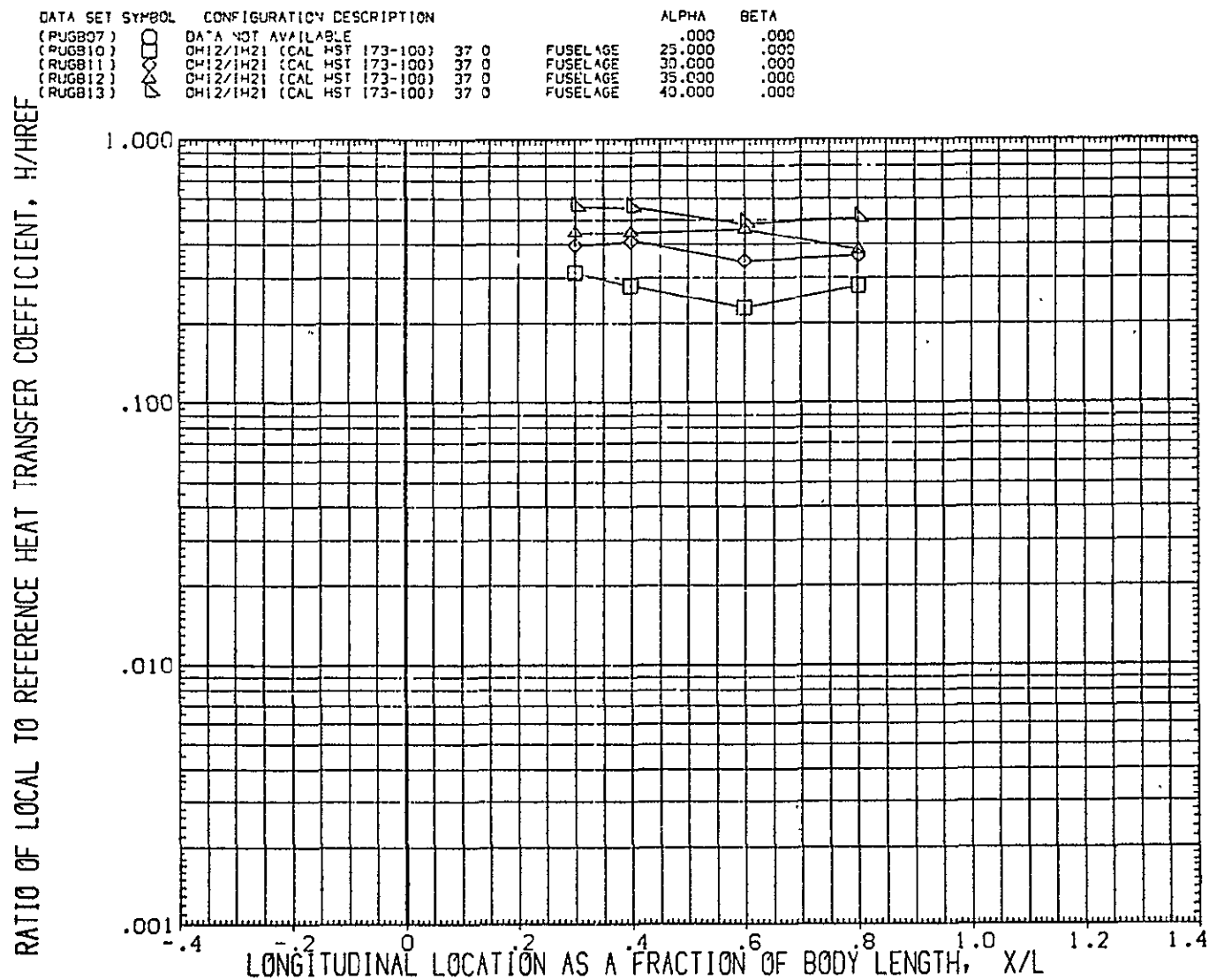


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = .900 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB12)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	40.000	.000

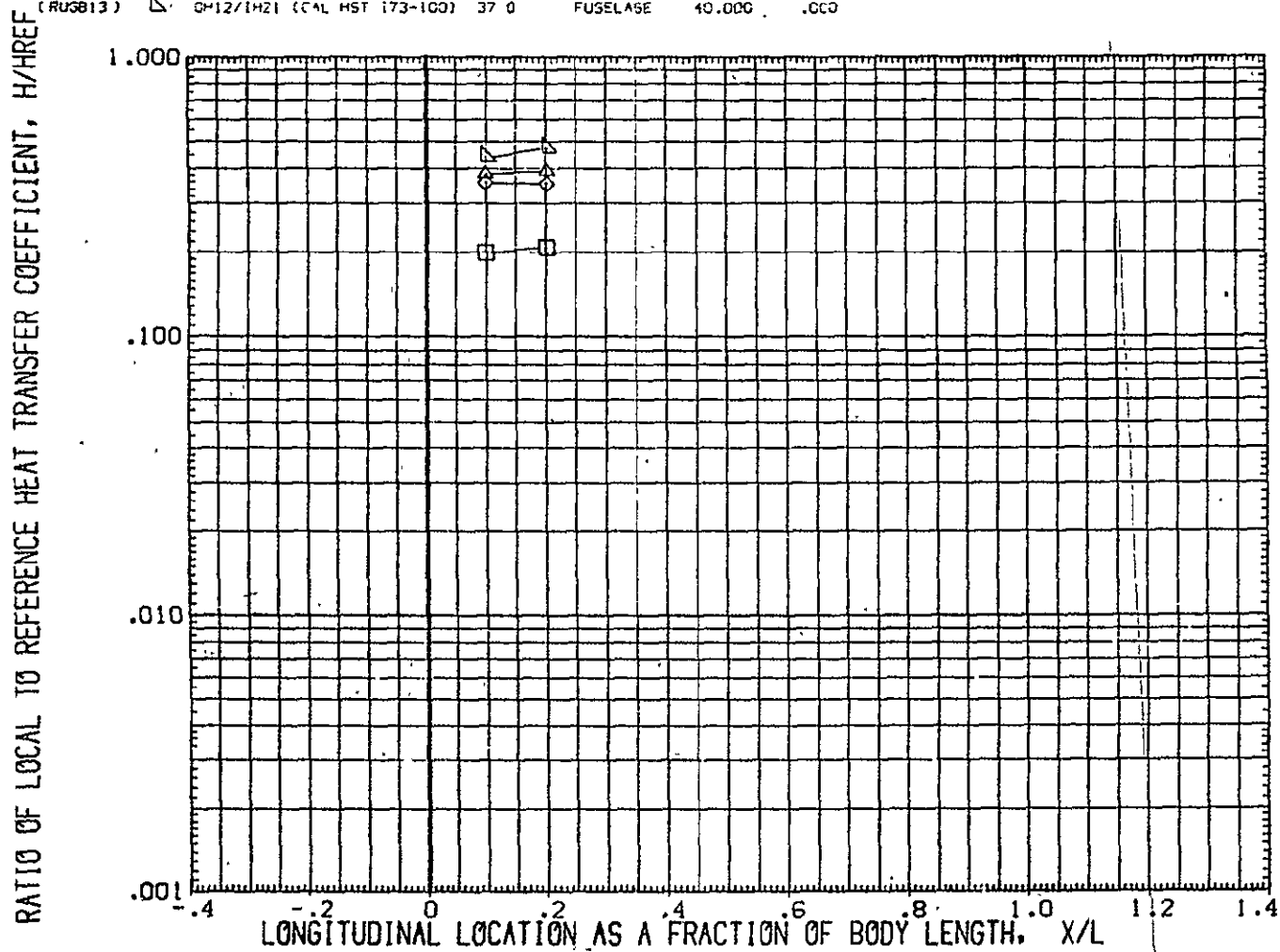


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = .900 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000
(RUGB11)	OH12/1H21 (CAL HST 173-100) 37 0	30.000	.000
(RUGB12)	OH12/1H21 (CAL HST 173-100) 37 0	35.000	.000
(RUGB13)	OH12/1H21 (CAL HST 173-100) 37 0	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

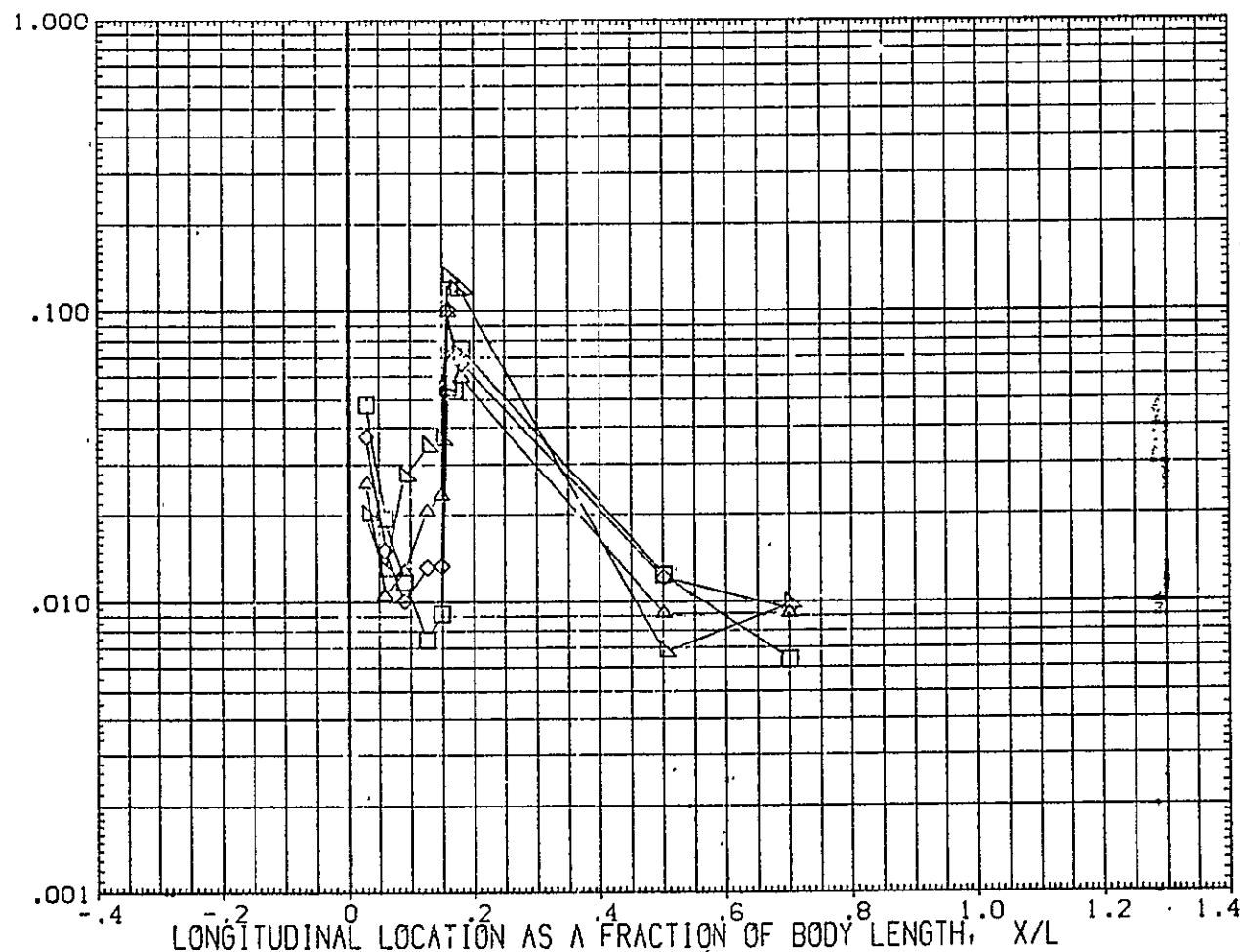


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = .900 PHI = 180.000

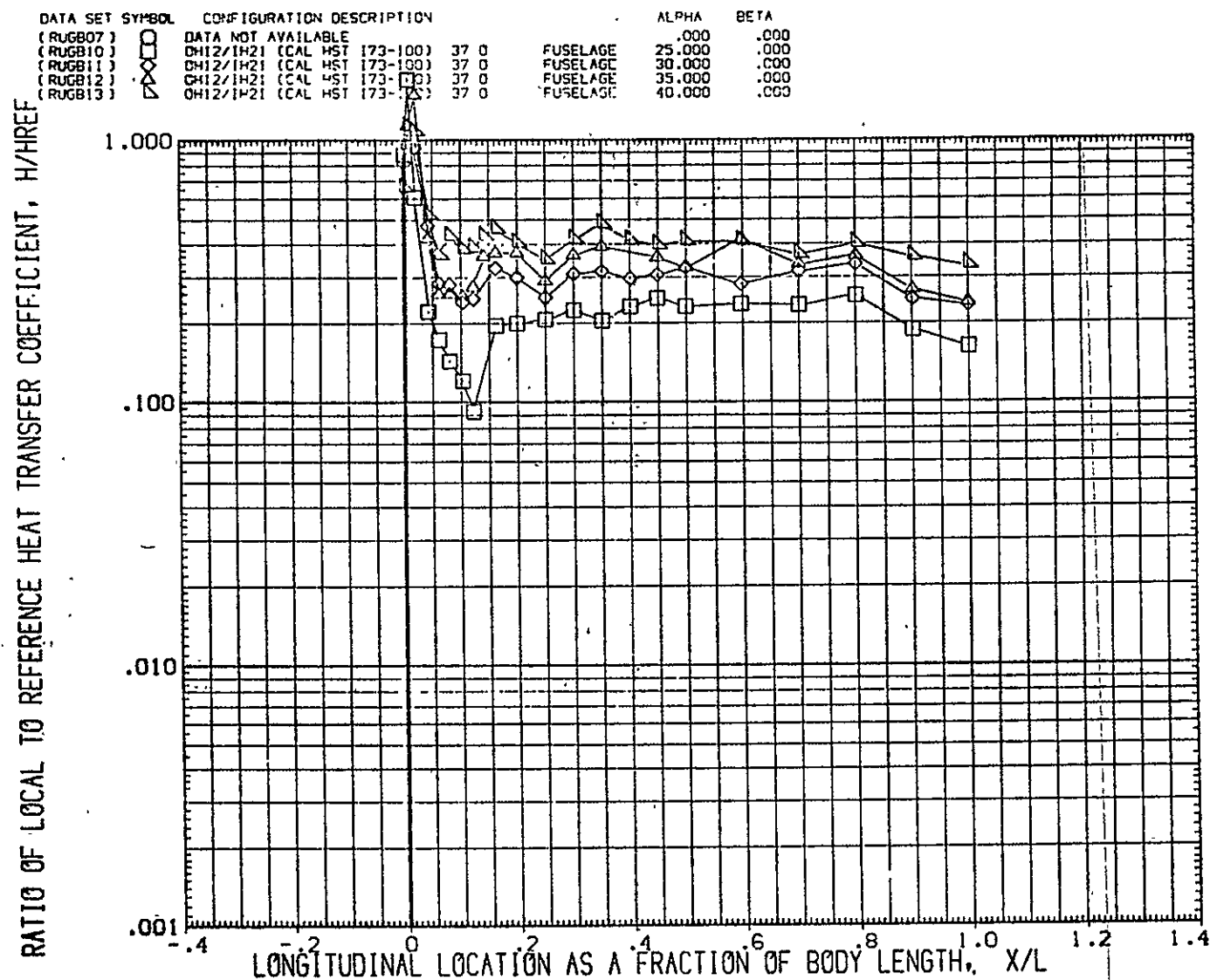


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT= 1.000 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUGB11)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE 30.000	.000
(RUGB12)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000
(RUGB13)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE 40.000	.000

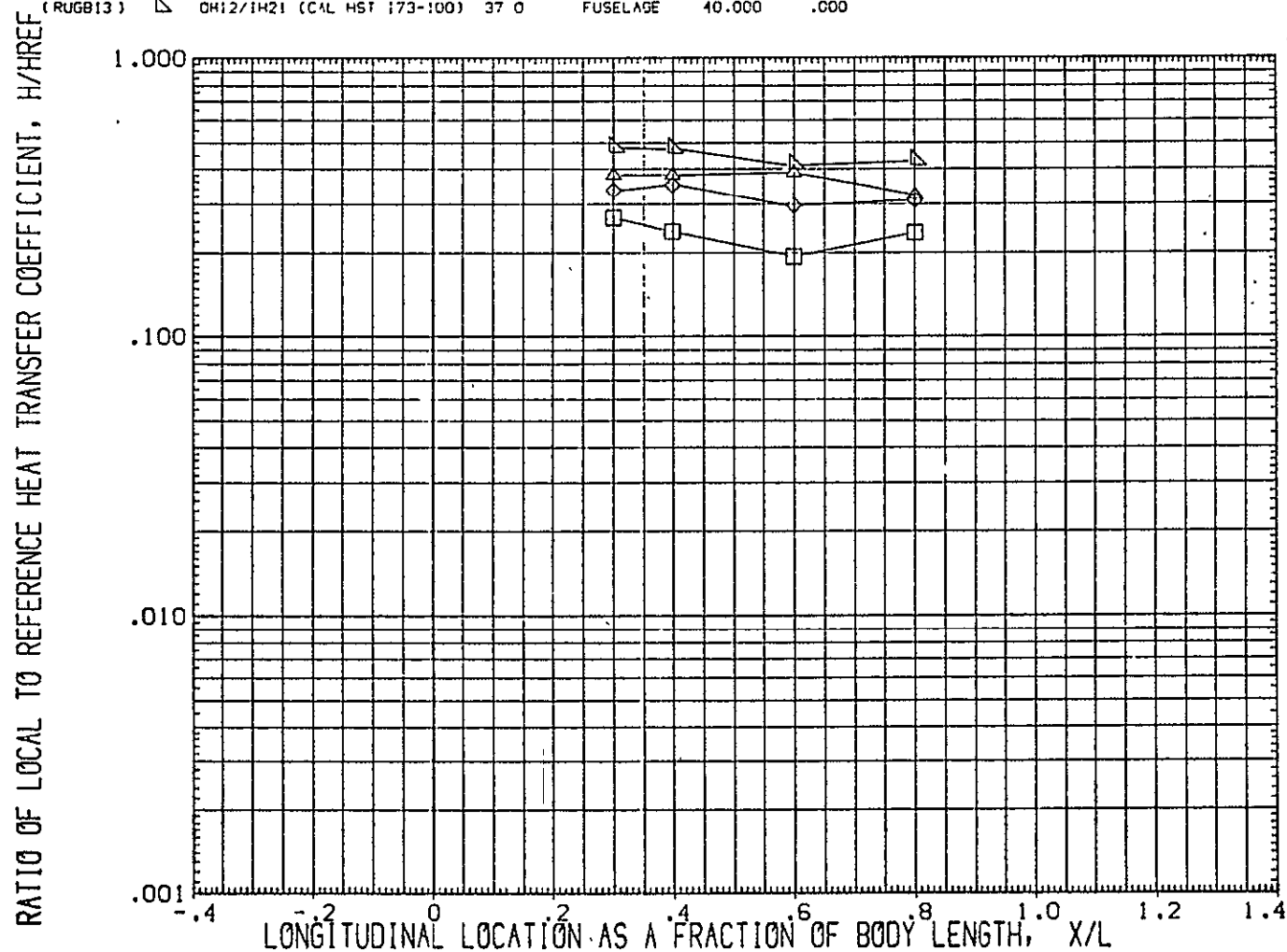


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT= 1.000 PHI = 25.000

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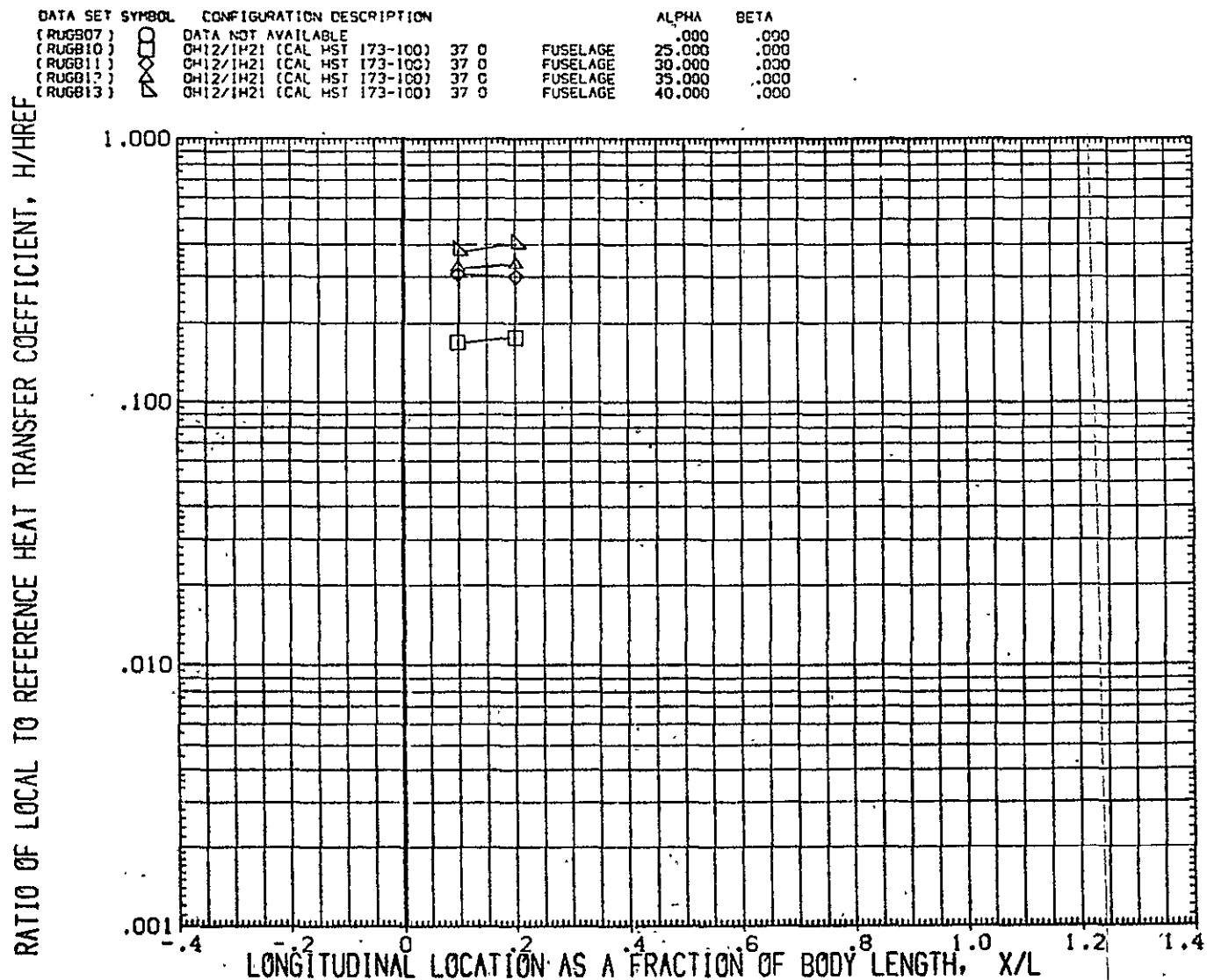


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L_1
MACH = 7.900 HAW/HT= 1.000 PHI = 30.000 PAGE 542

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB12)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

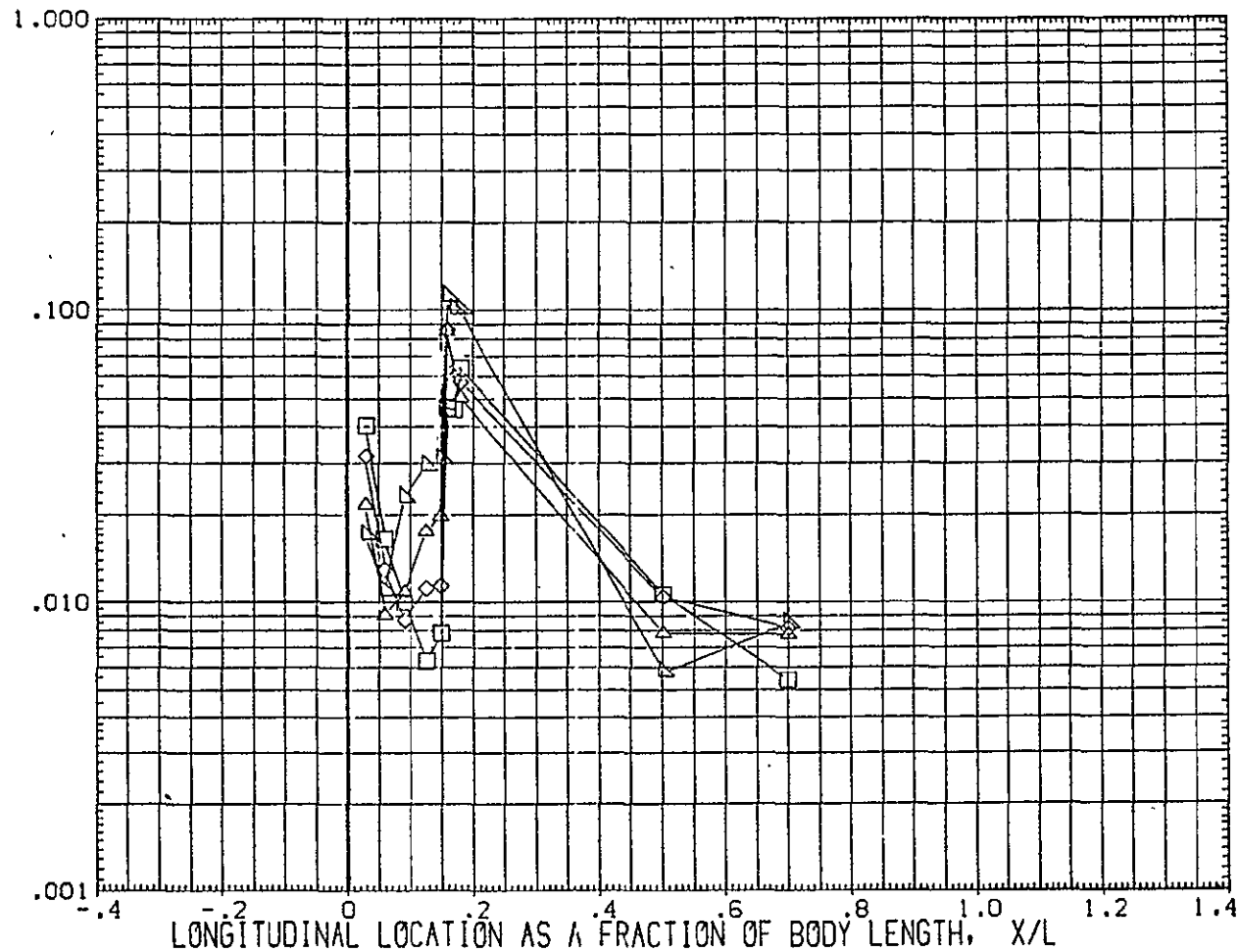


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L_1

MACH = 7.900 HAW/HT= 1.000 PHI = 180.000

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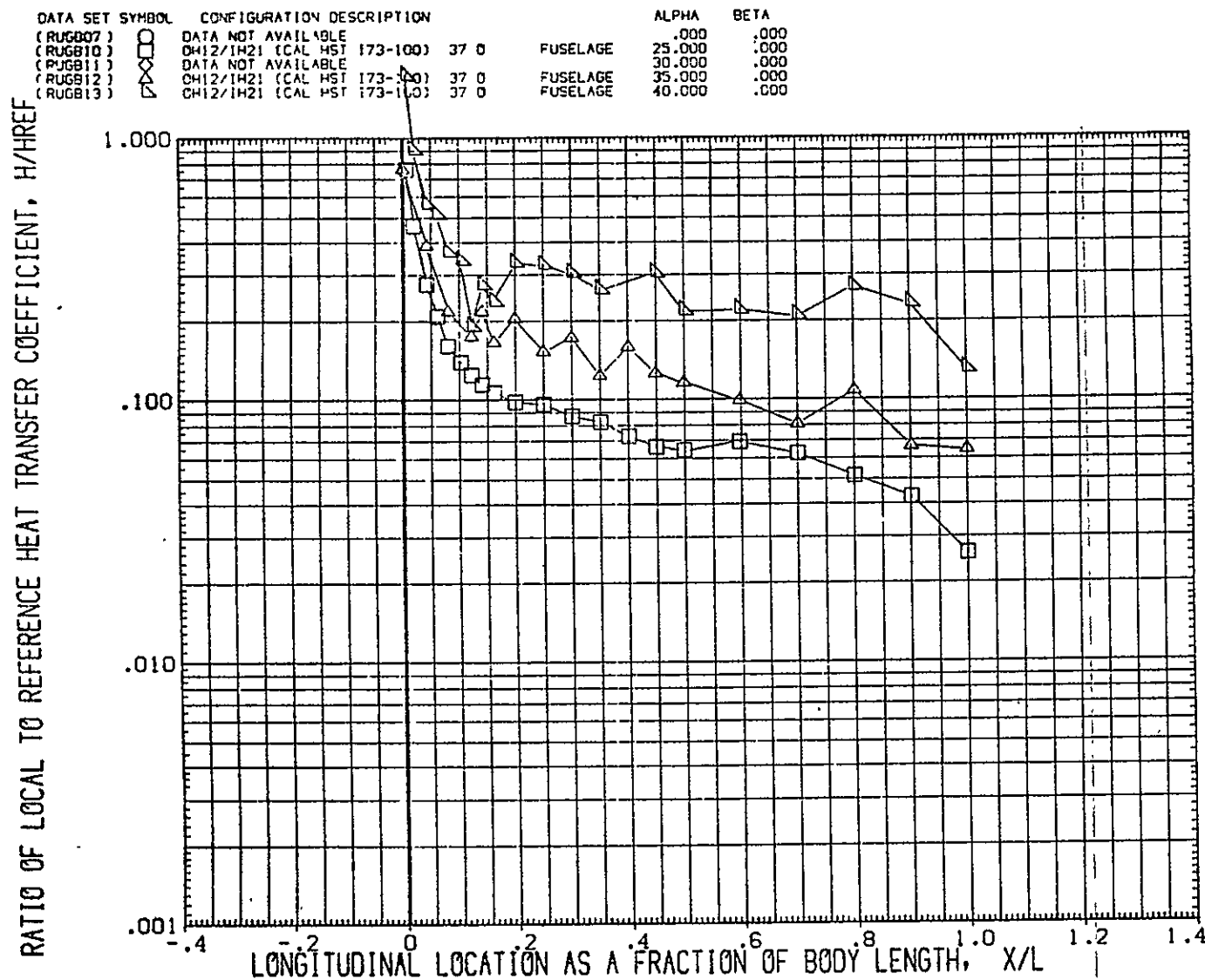


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = .850 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUSB07)	DATA NOT AVAILABLE	.000	.000
(RUS310)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAG: 25.000	.000
(RUGB11)	DATA NOT AVAILABLE	30.000	.000
(RUSB12)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAG: 35.000	.000
(RUGB13)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAG: 40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

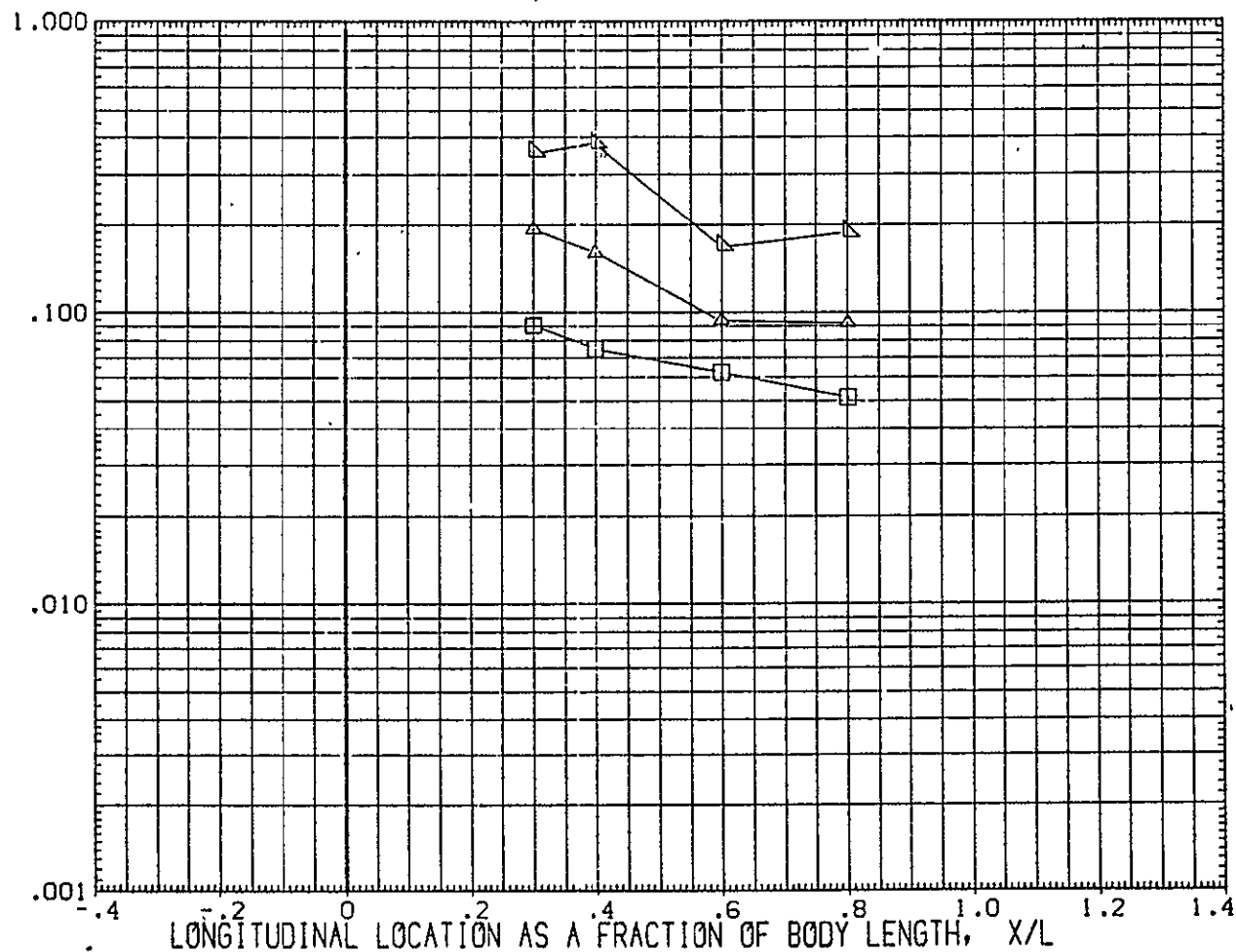


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 8.010 HAW/HT= .850 PHI = 25.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	DATA NOT AVAILABLE	.000	.000
(RUG810)	0412/1H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUG811)	DATA NOT AVAILABLE	30.000	.000
(RUG812)	0412/1H21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUG813)	0412/1H21 (CAL HST 173-100) 37 0 FUSELAGE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

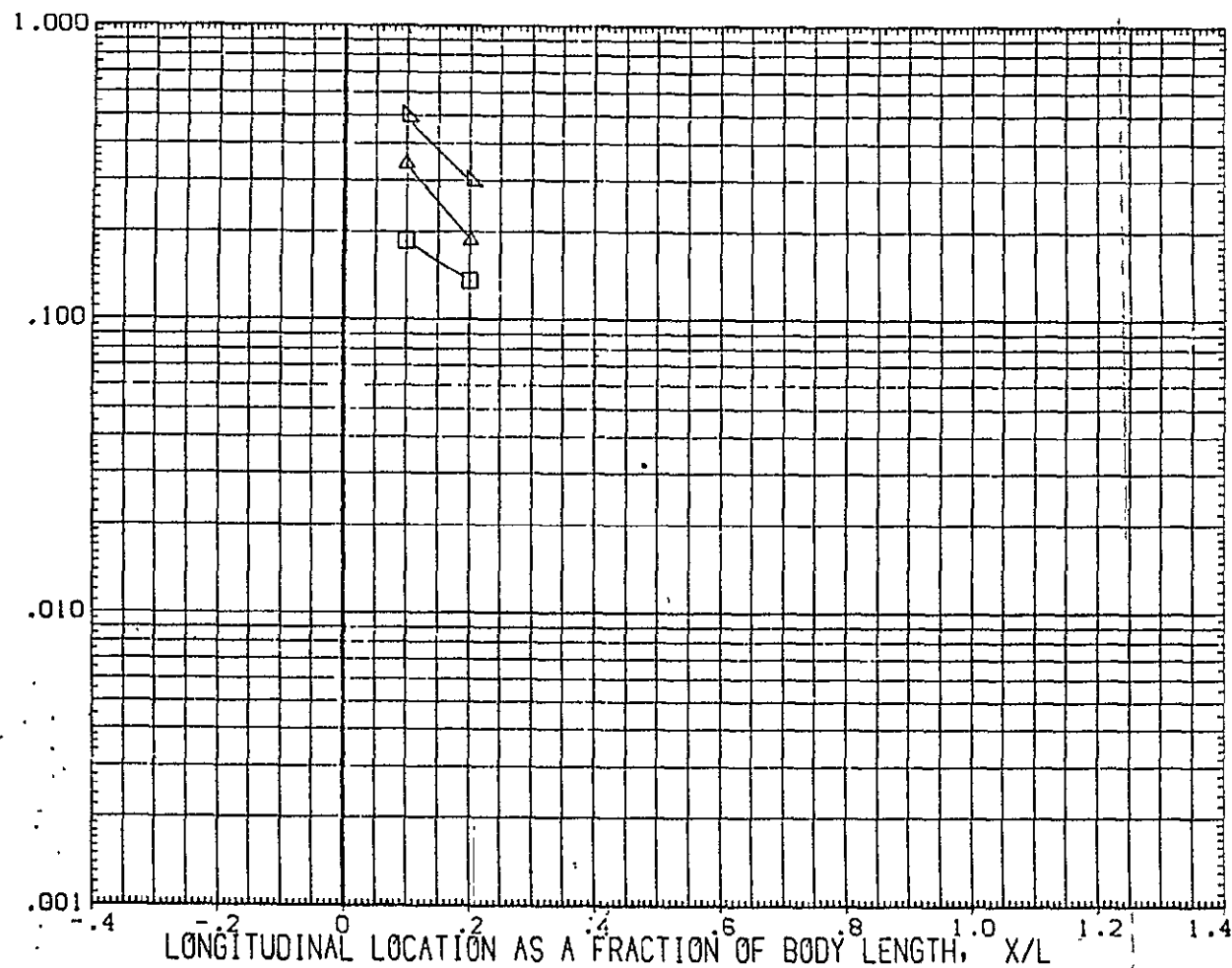


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = .850 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	DATA NOT AVAILABLE	30.000	.000
(RUGB12)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

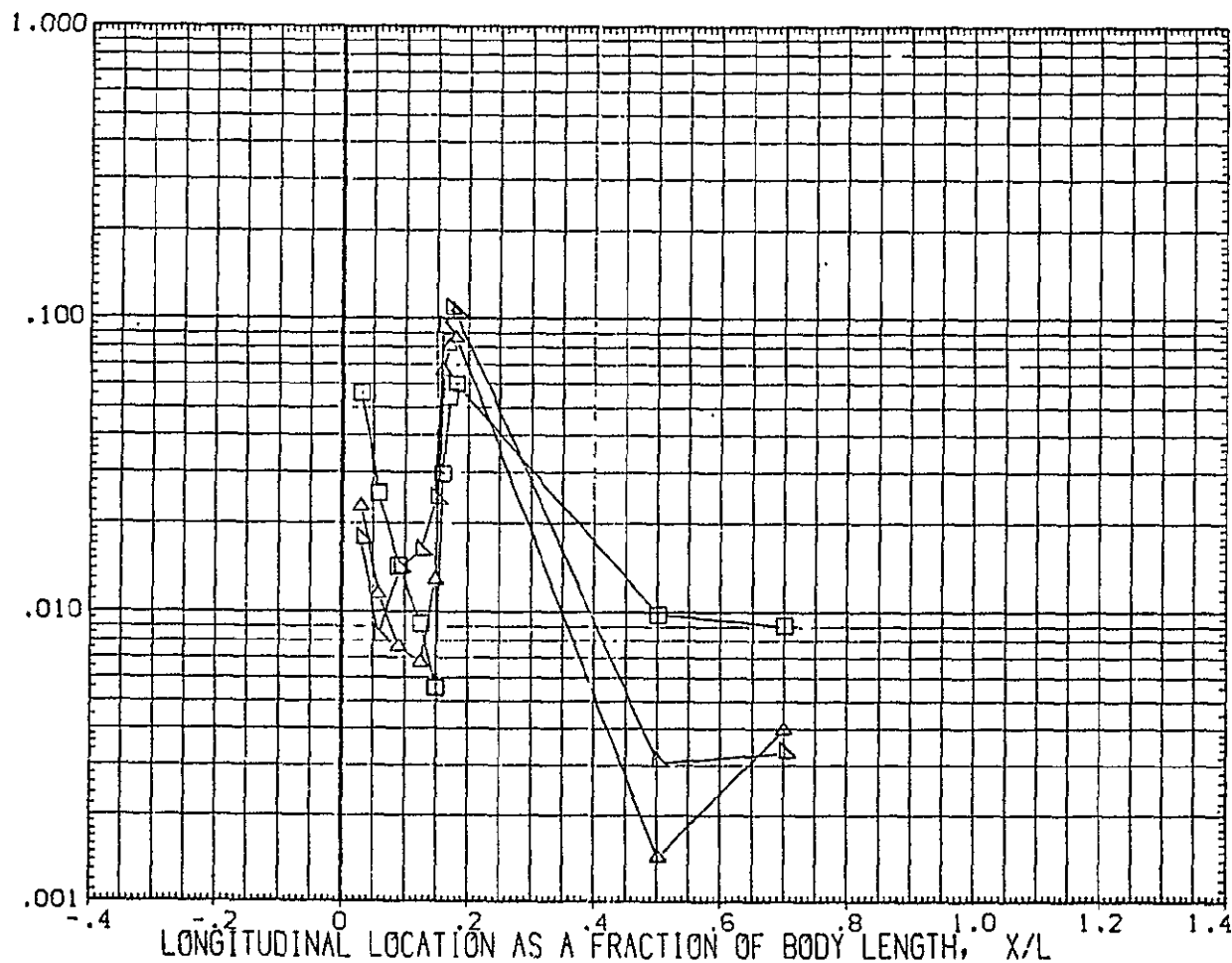


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = .850 PHI = 180.000

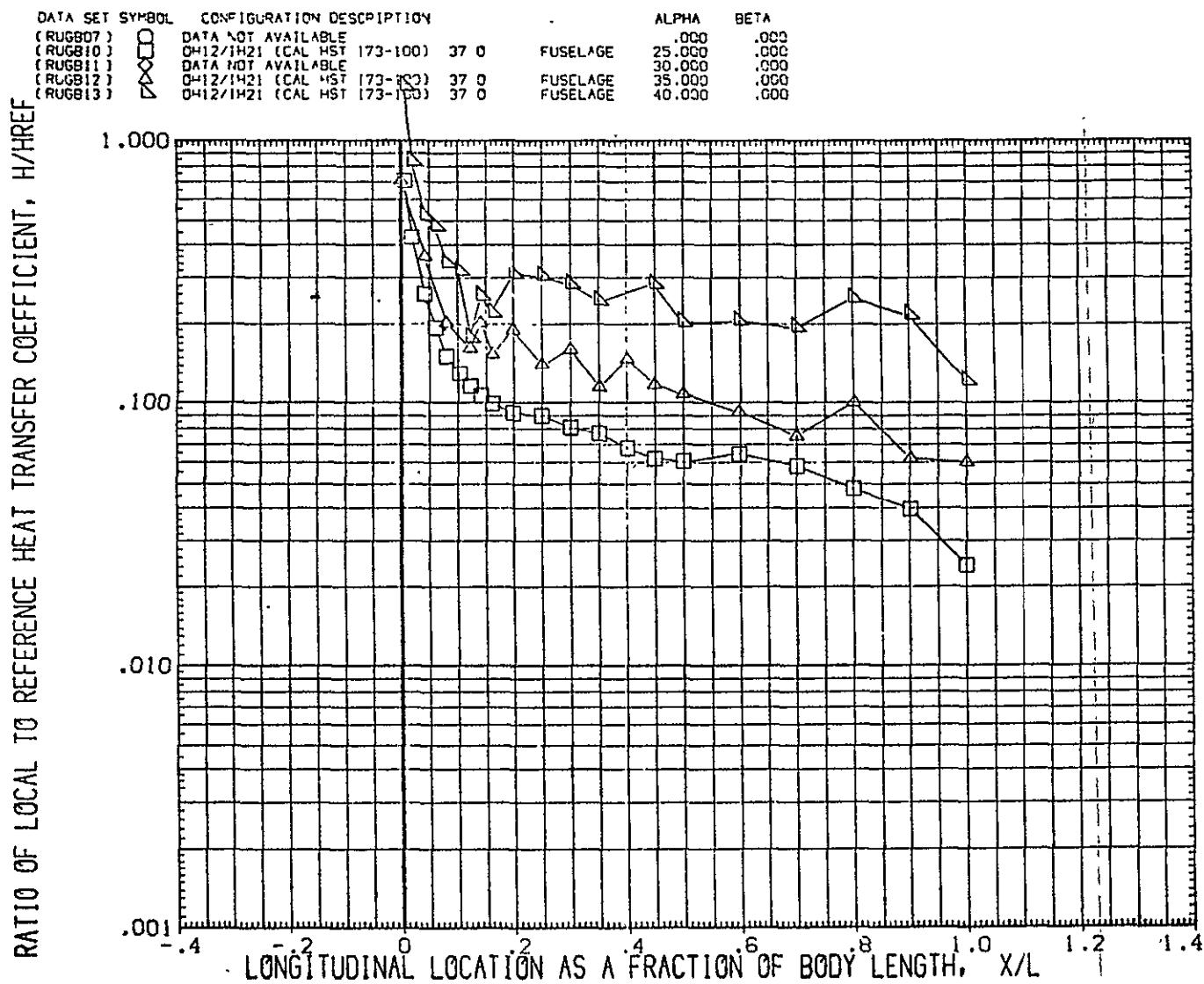


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = .900 PHI = .000

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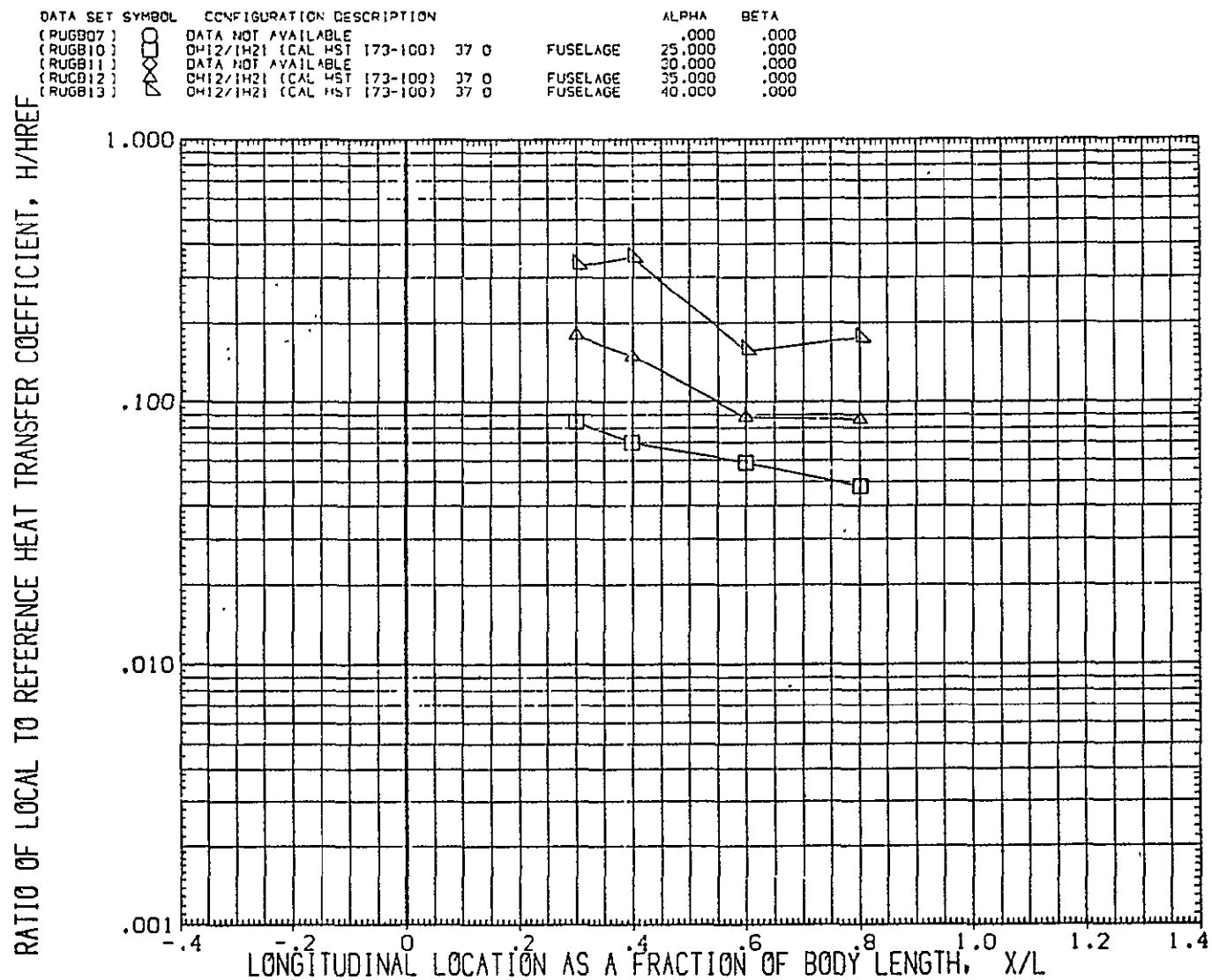
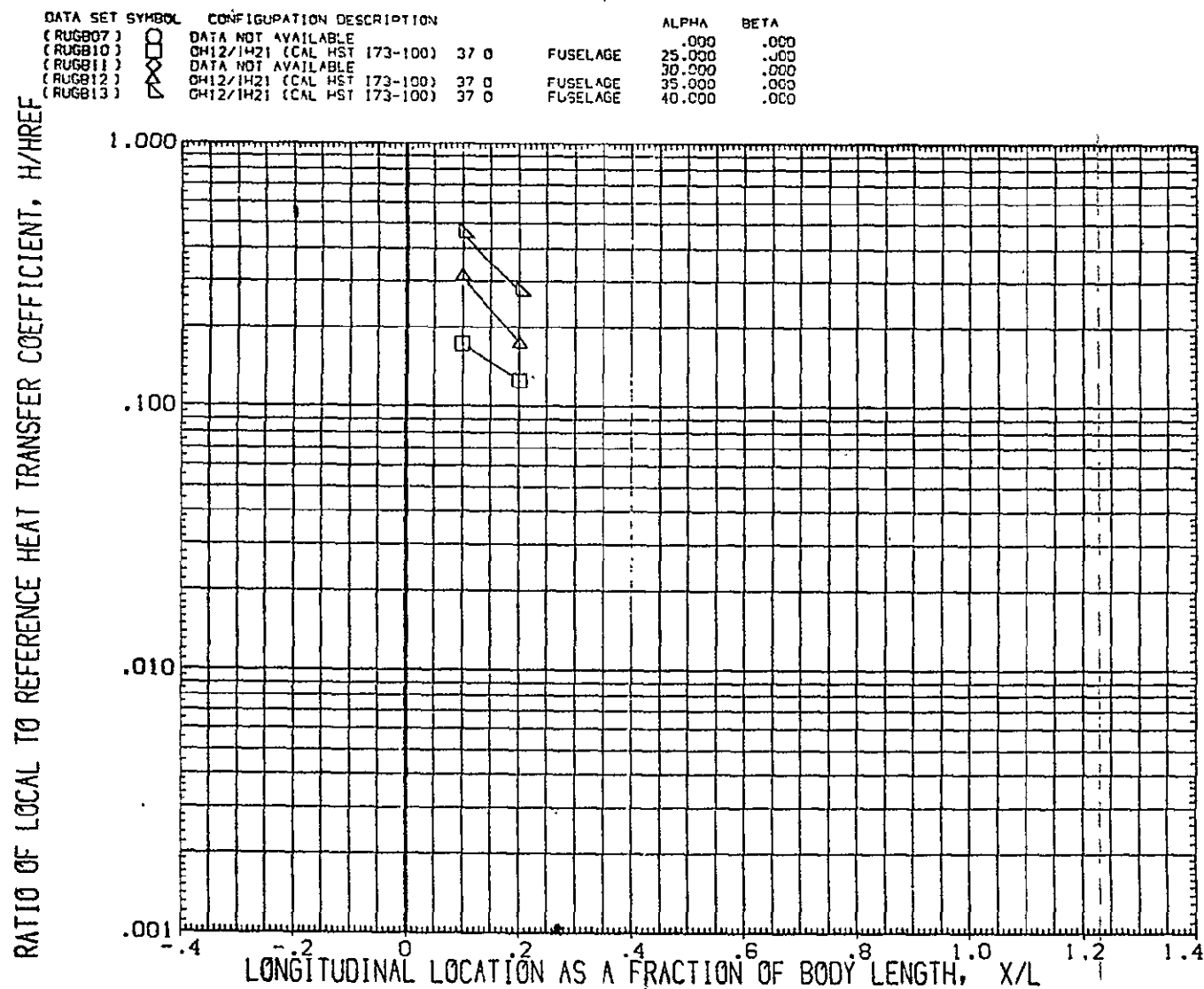


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 8.010 HAW/HT = .900 PHI = 25.000 PAGE 549



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 C	25.000	.000
(RUGB11)	DATA NOT AVAILABLE	30.000	.000
(RUGB12)	OH12/1H21 (CAL HST 173-103) 37 O	35.000	.000
(RUGB13)	OH12/1H21 (CAL HST 173-105) 37 O	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

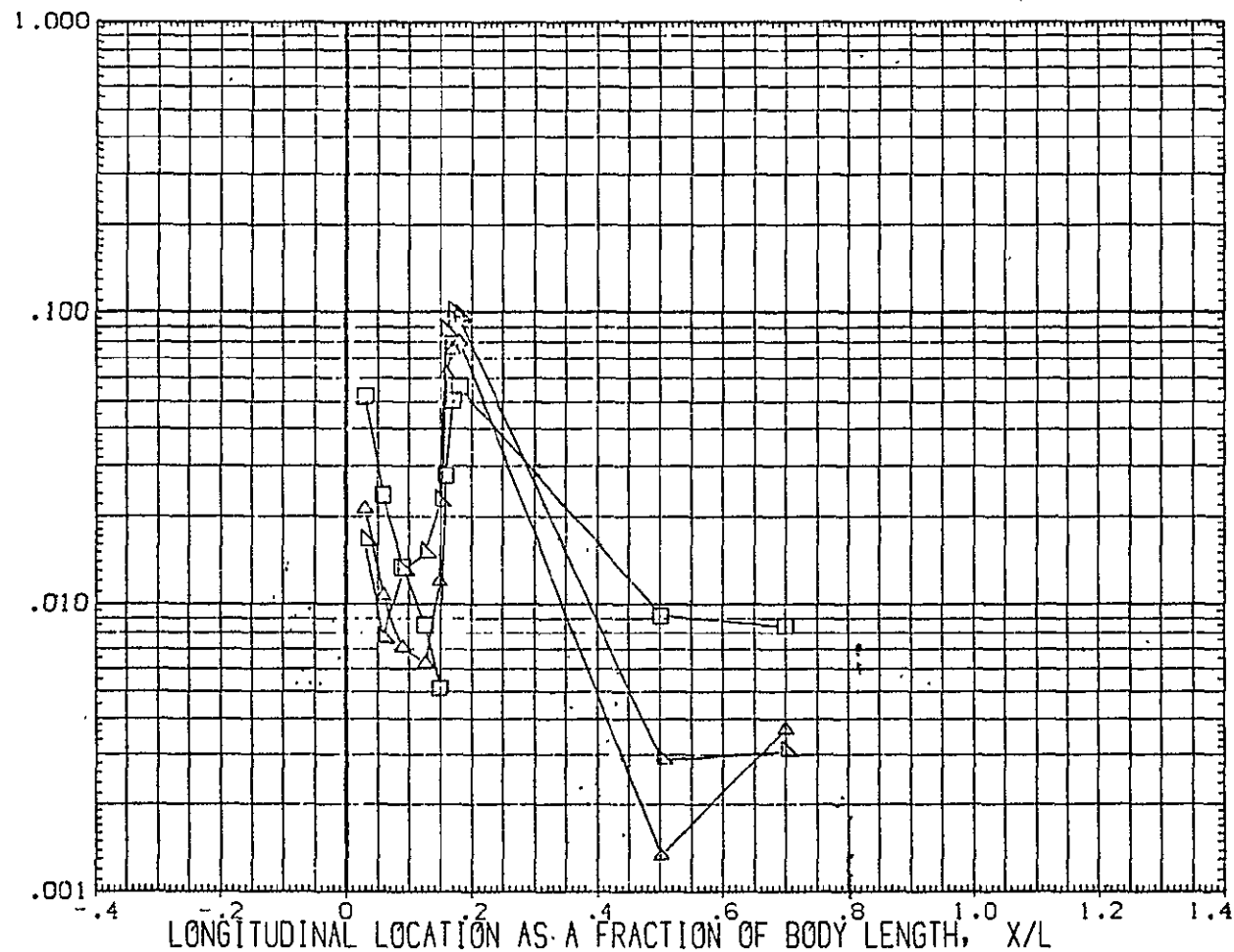


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = .900 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000
(RUGB11)	DATA NOT AVAILABLE	30.000	.000
(RUGB12)	OH12/1H21 (CAL HST 173-100) 37 0	35.000	.000
(RUGB13)	OH12/1H21 (CAL HST 173-100) 37 0	40.000	.000

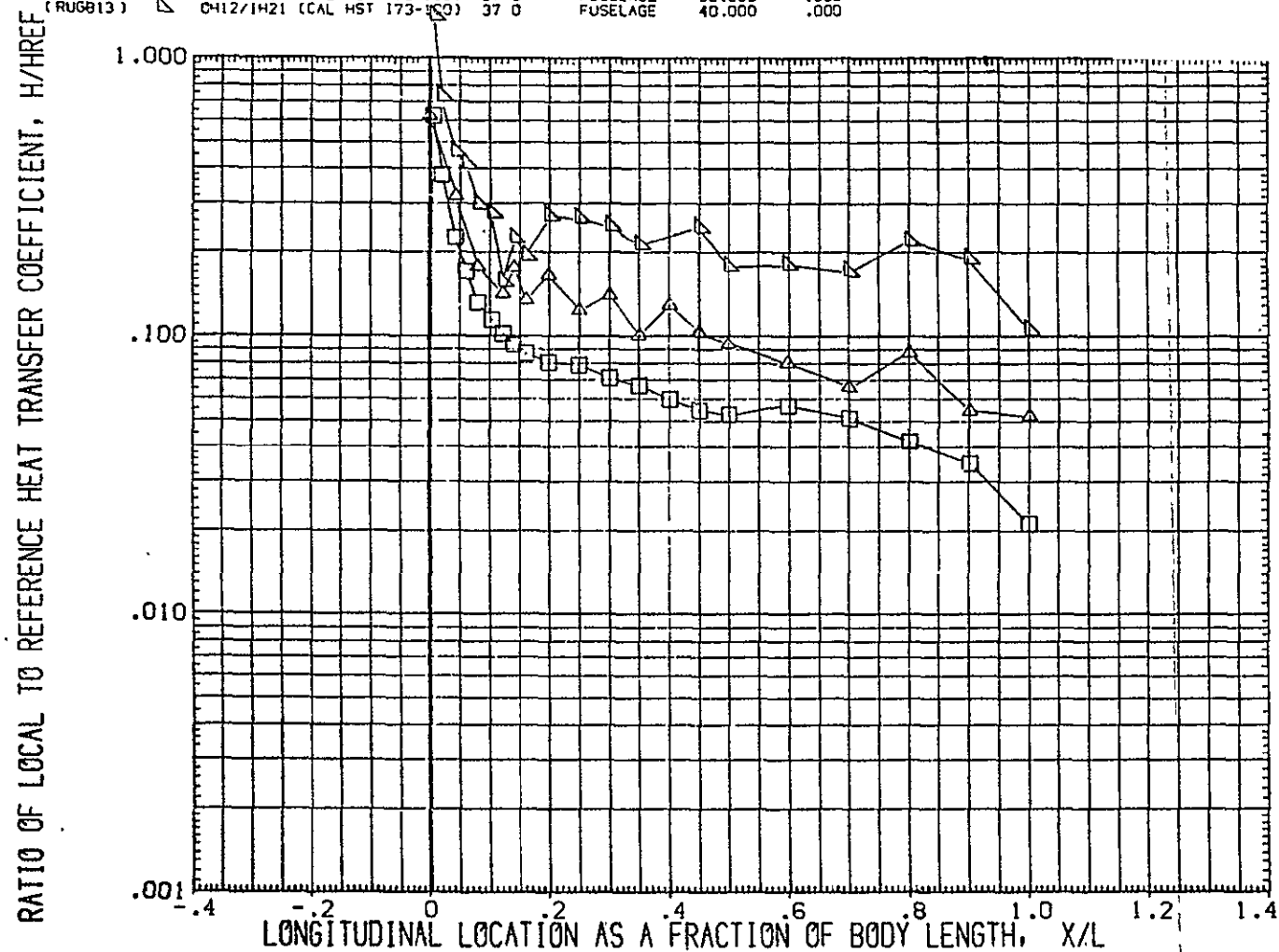


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = 1.000 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	DATA NOT AVAILABLE	30.000	.000
(RUGB12)	OH12/H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB13)	OH12/H21 (CAL HST 173-100) 37 0 FUSELAGE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

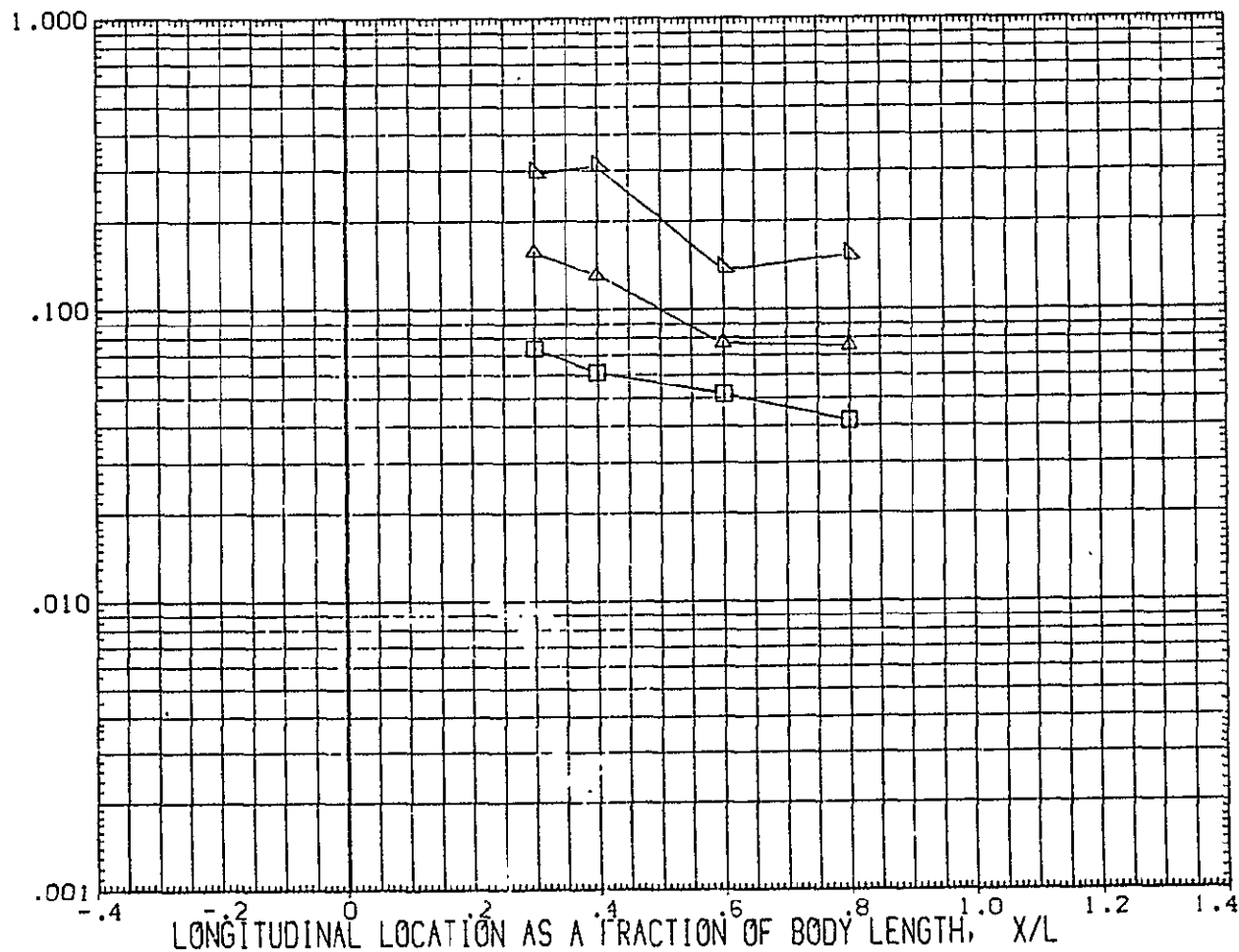


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = 1.000 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	DATA NOT AVAILABLE	30.000	.000
(RUGB12)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

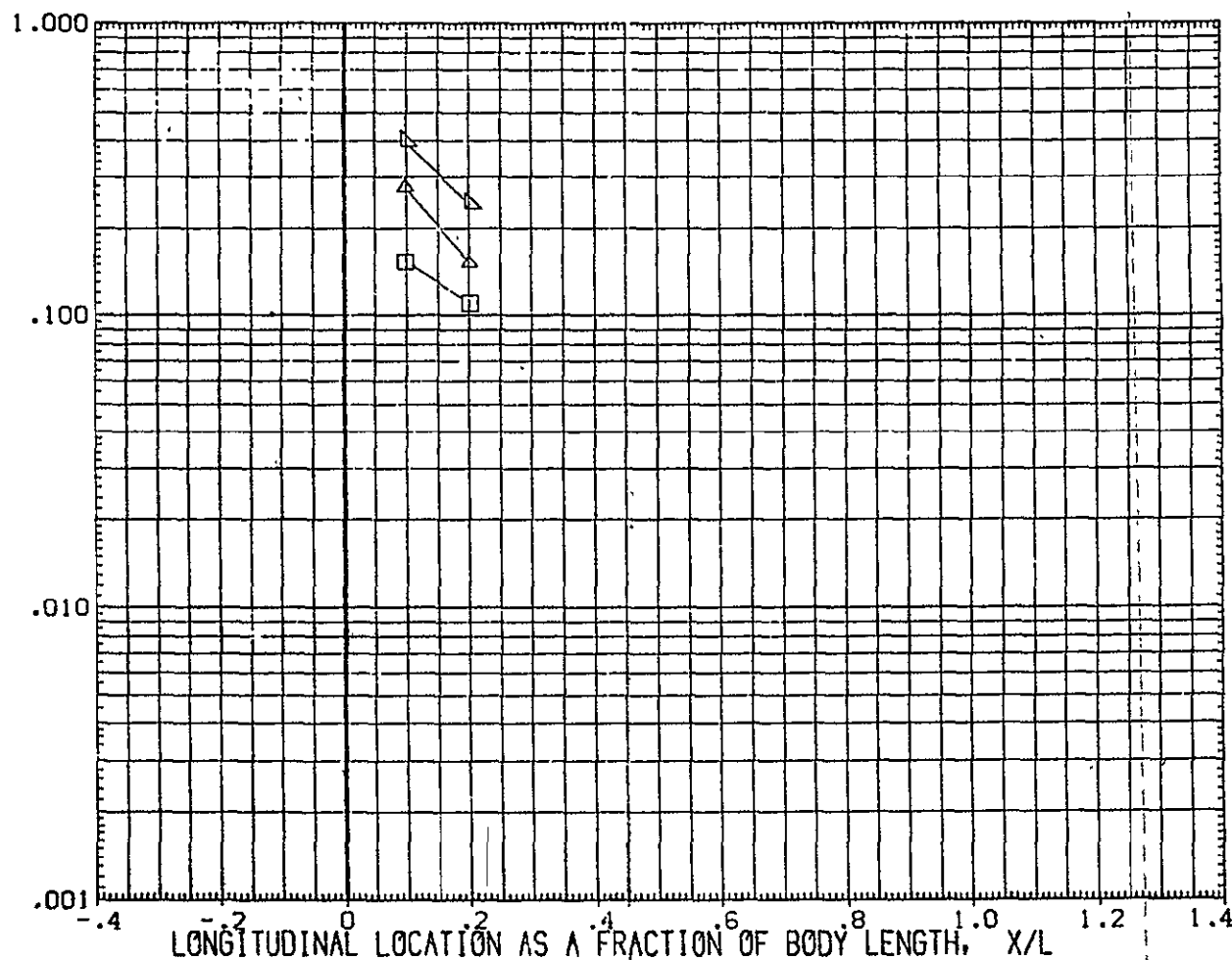


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = 1.000 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUGB11)	DATA NOT AVAILABLE	30.000	.000
(RUGB12)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000
(RUGB13)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE 40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

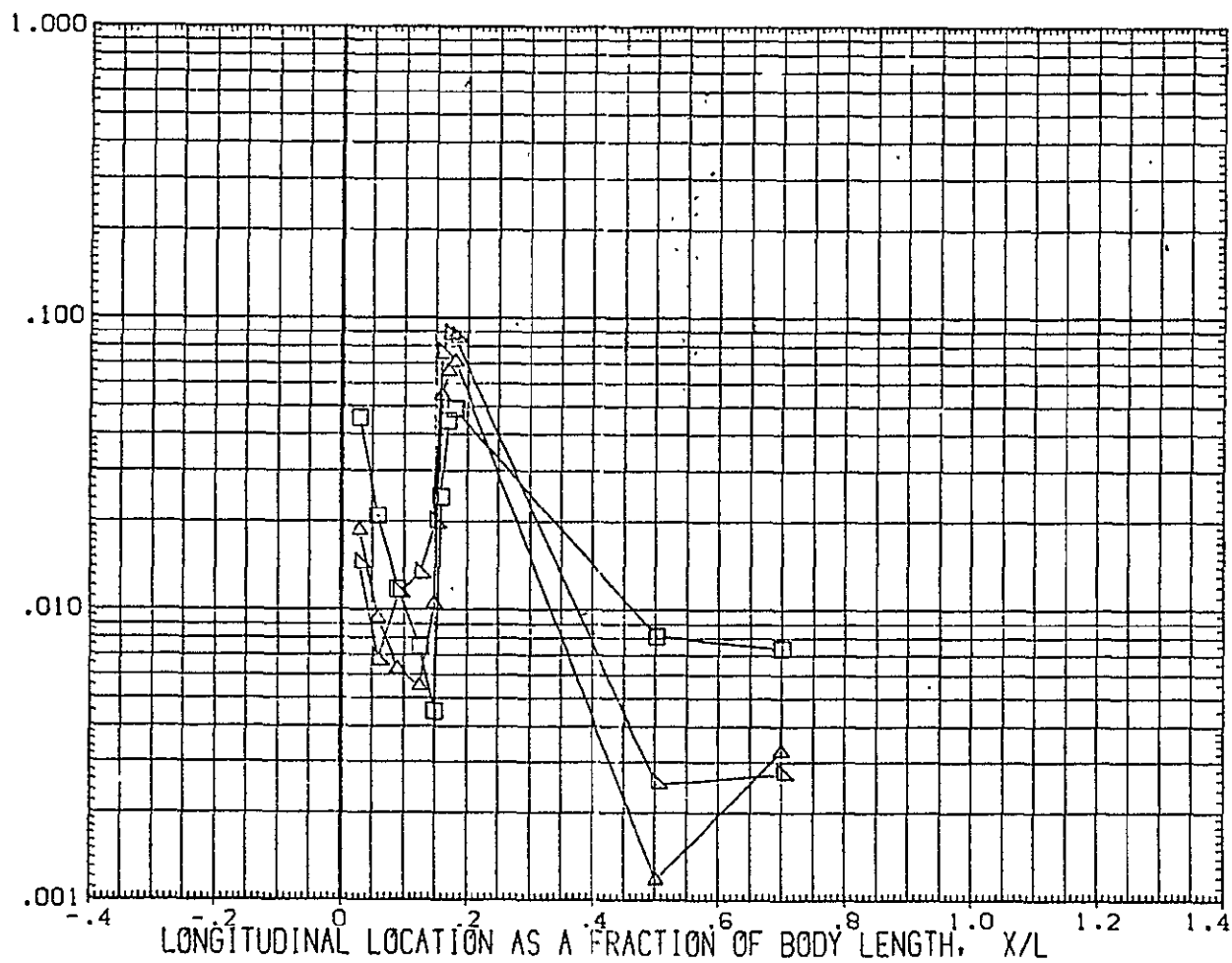


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT= 1.000 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB12)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

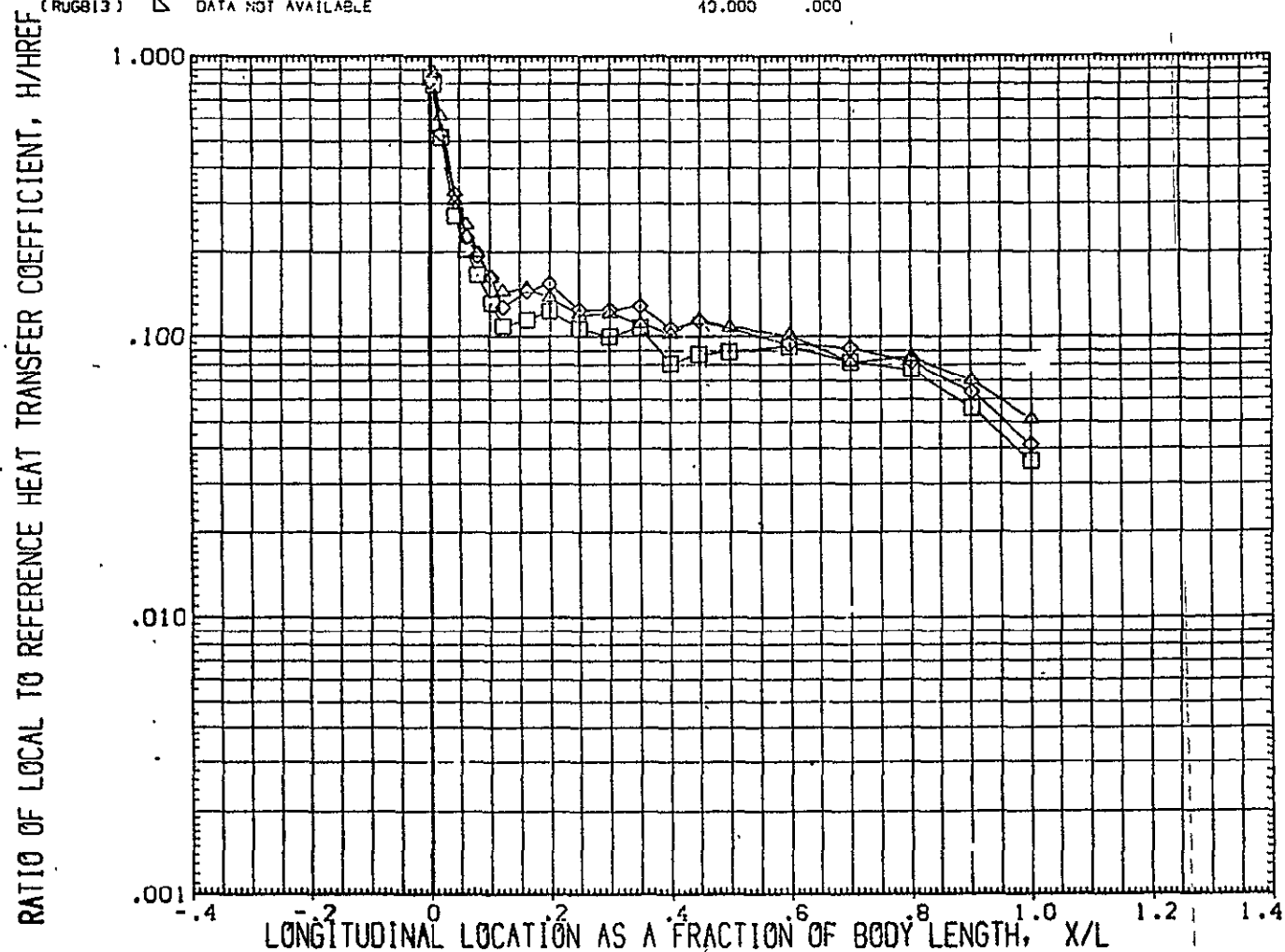


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/HT = .850 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	OH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB12)	OH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

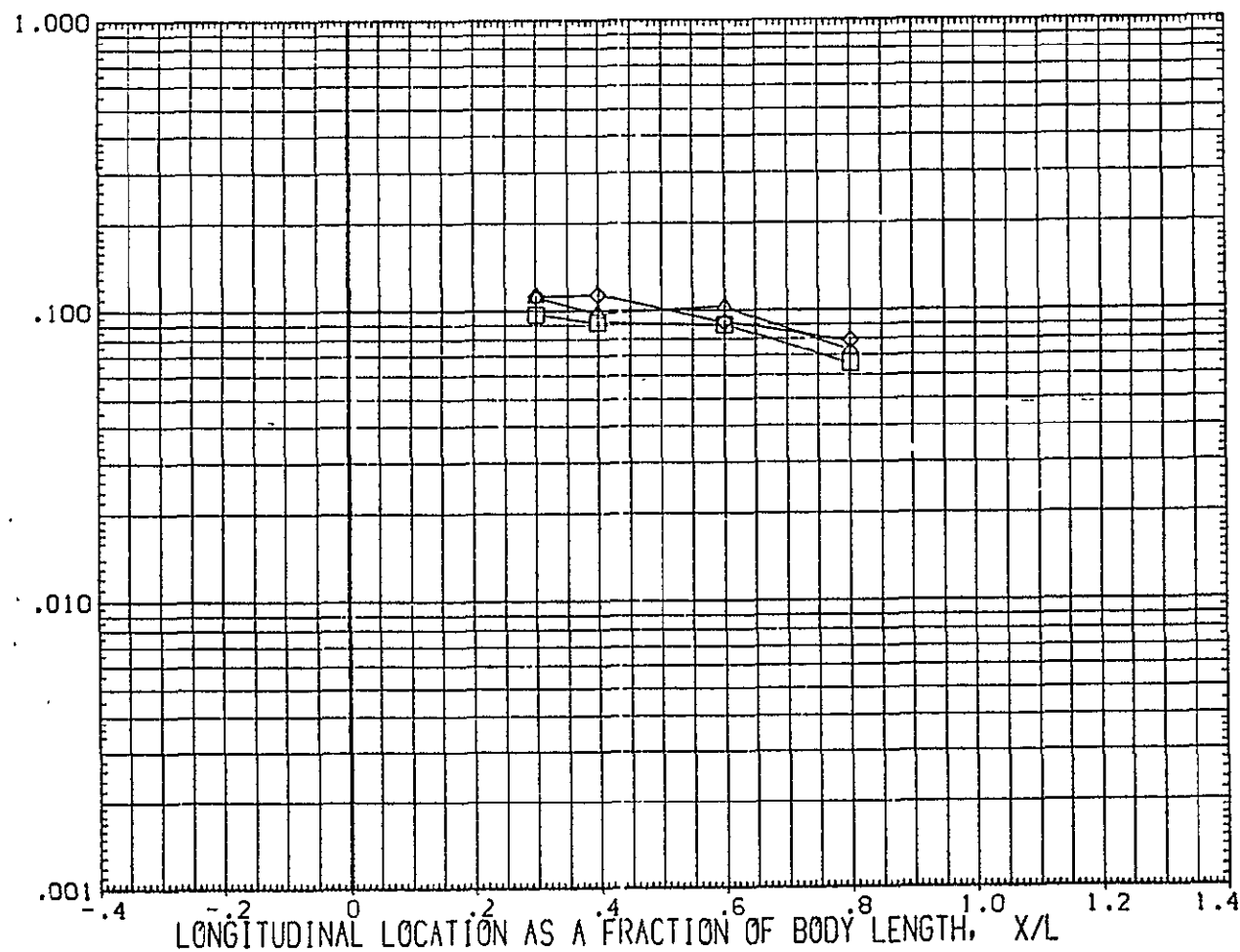


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L

MACH = 10.500 HAW/HT = .850 PHI = 25.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000
(RUGB11)	OH12/1H21 (CAL HST 173-100) 37 0	30.000	.000
(RUGB12)	OH12/1H21 (CAL HST 173-100) 37 0	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

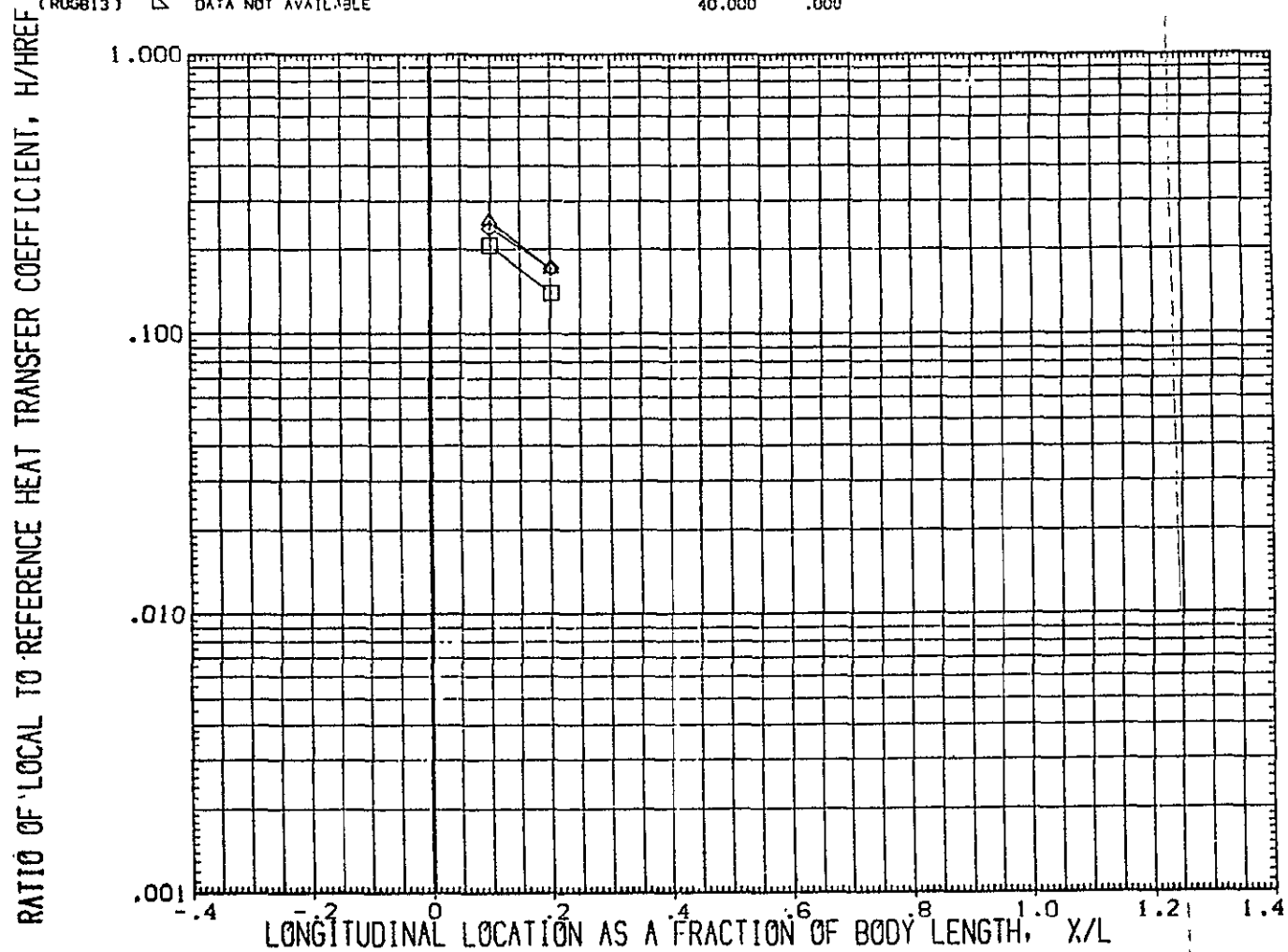


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L_1
MACH = 10.500 HAW/HT = .850 PHI = 30.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB12)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

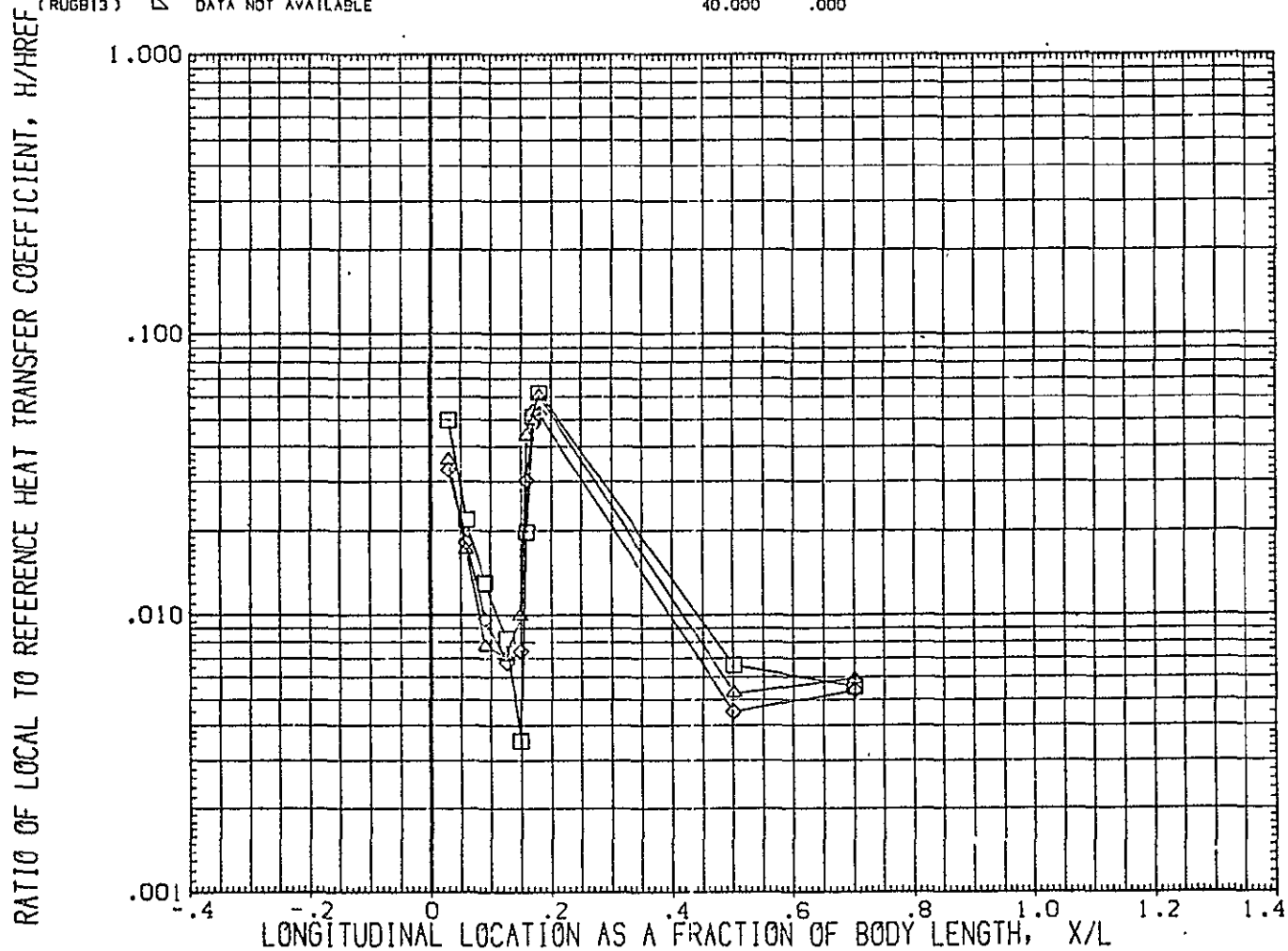


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 10.500 HAW/HT = .850 PHI = 180.000 PAGE 559

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/IH21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	OH12/IH21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB12)	OH12/IH21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{ref}

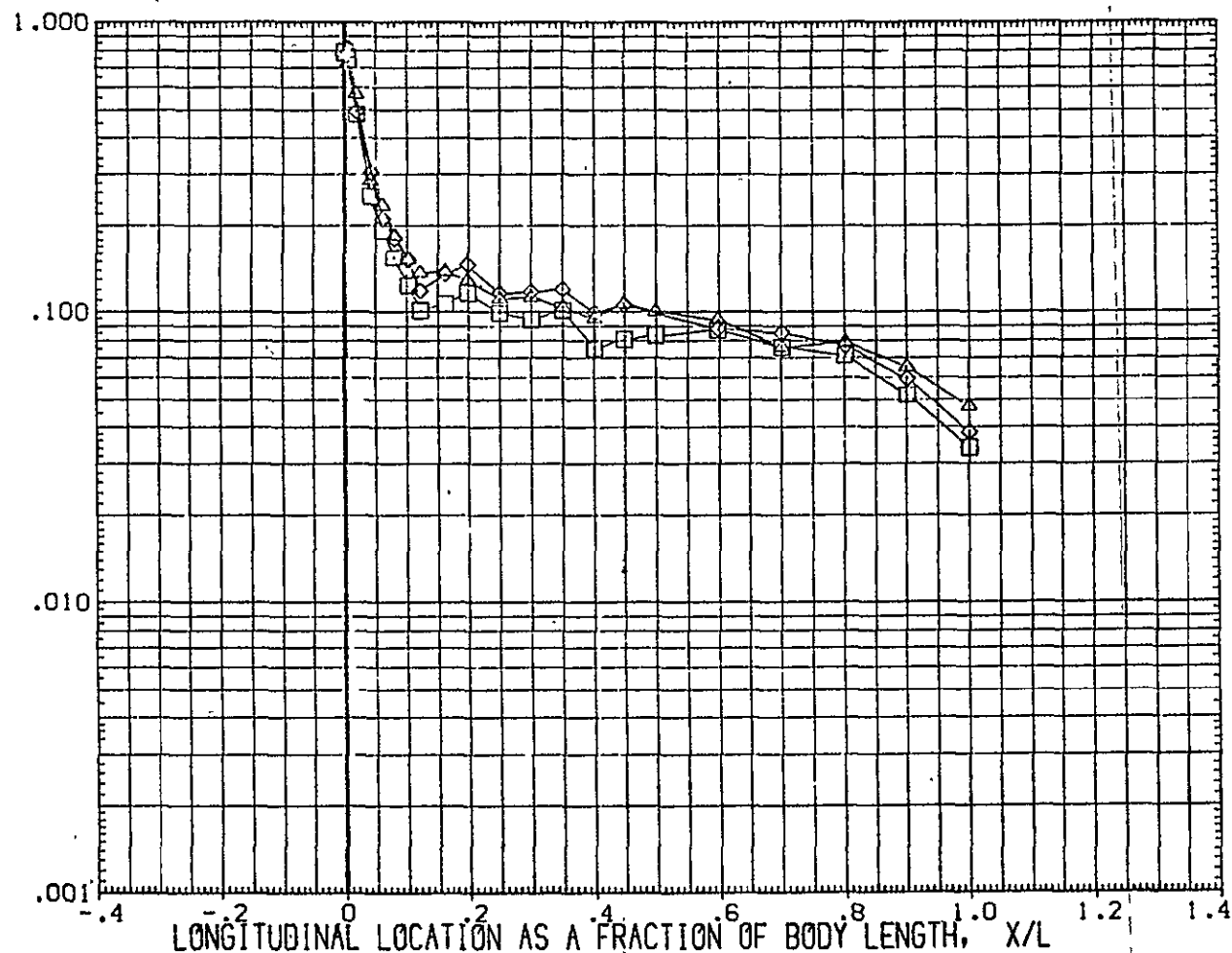


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/HT = .900 PHI = .000

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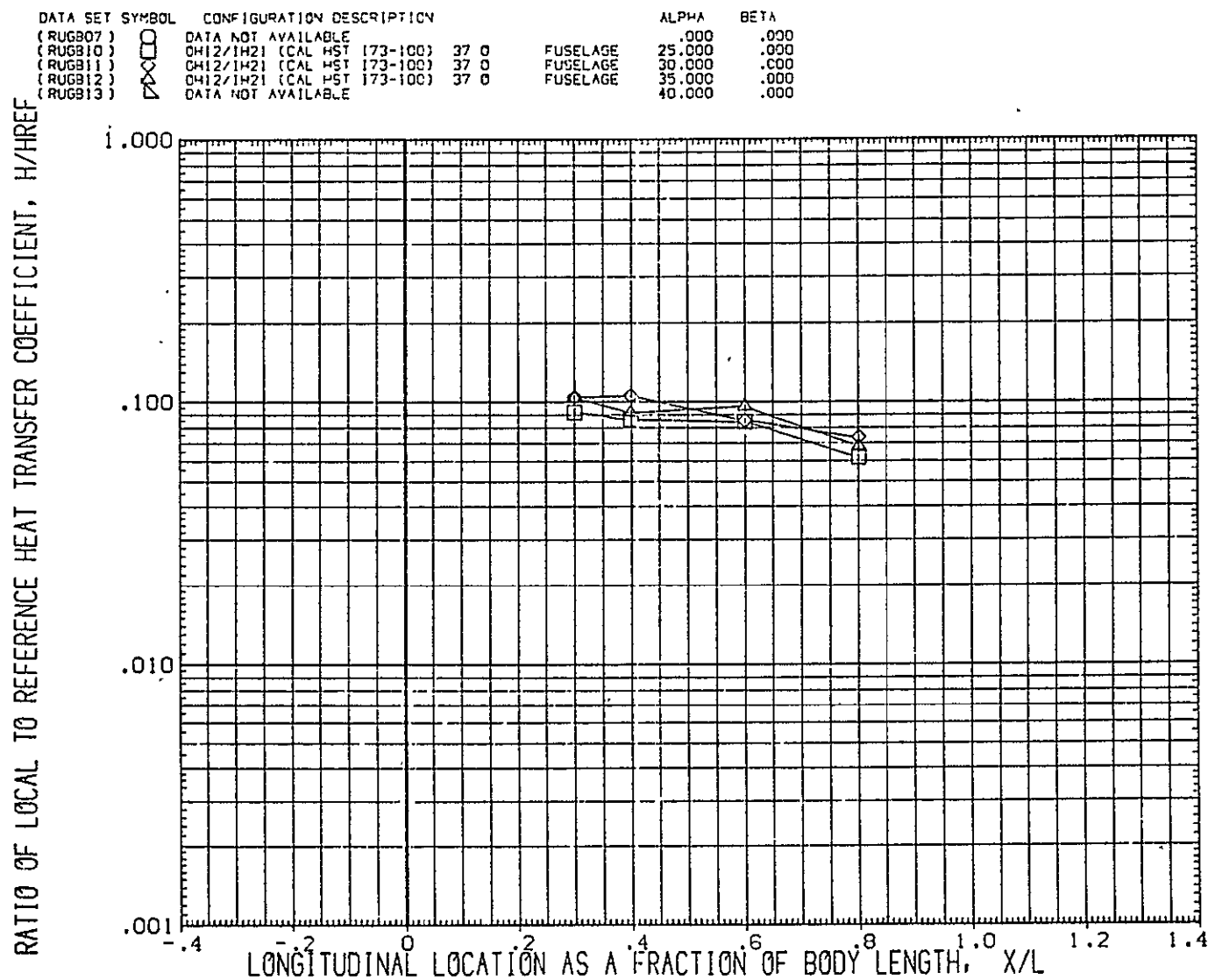


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 10.500 HAW/HT = .900 PHI = 25.000 PAGE 561

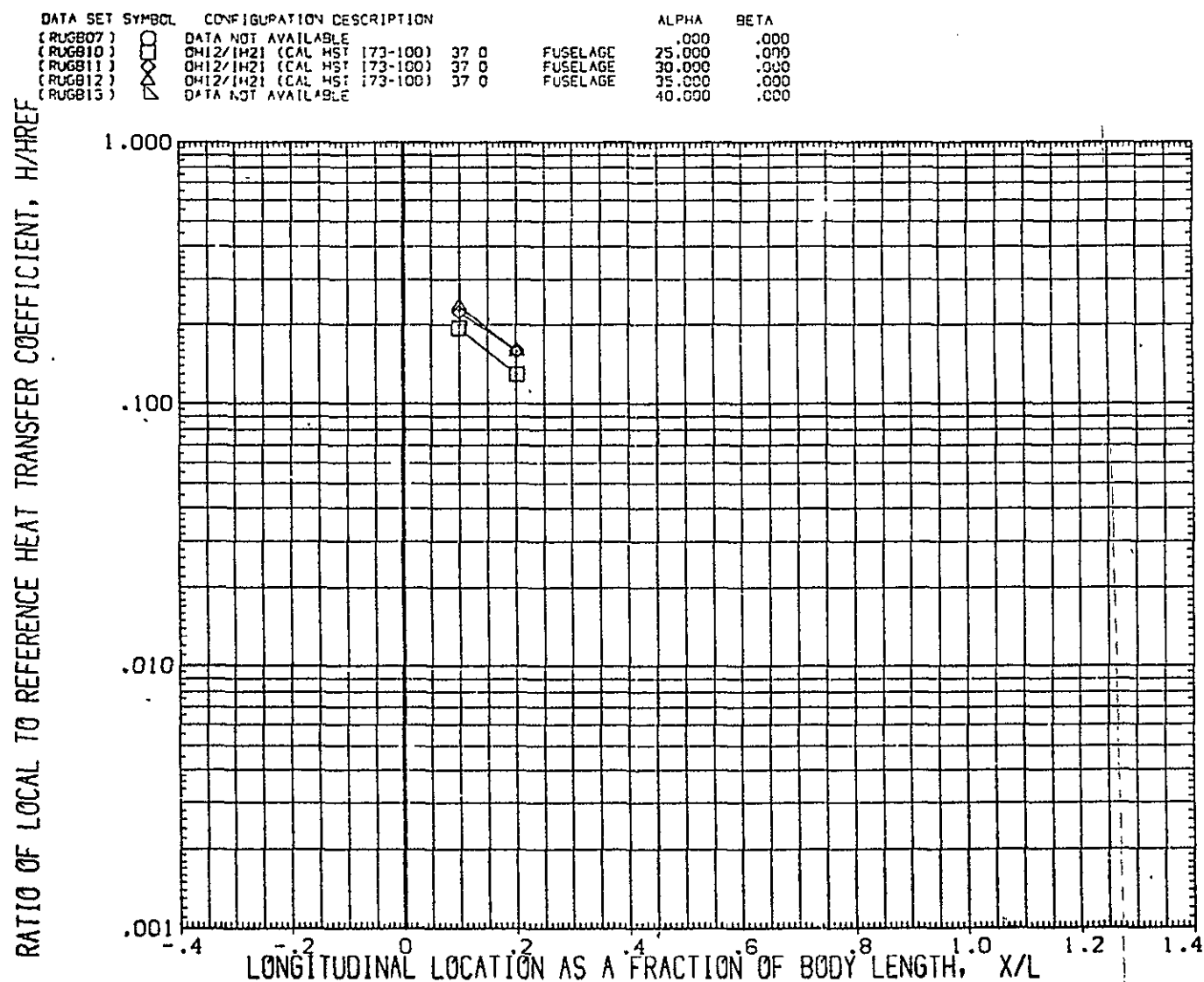


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/HT = .900 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUSB07)	DATA NOT AVAILABLE	.000	.000
(RUSB10)	CH12/1H21 (CAL HST 173-100) 37 0	25.000	.000
(RUSB11)	CH12/1H21 (CAL HST 173-100) 37 0	30.000	.000
(RUSB12)	CH12/1H21 (CAL HST 173-100) 37 0	35.000	.000
(RUSB13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

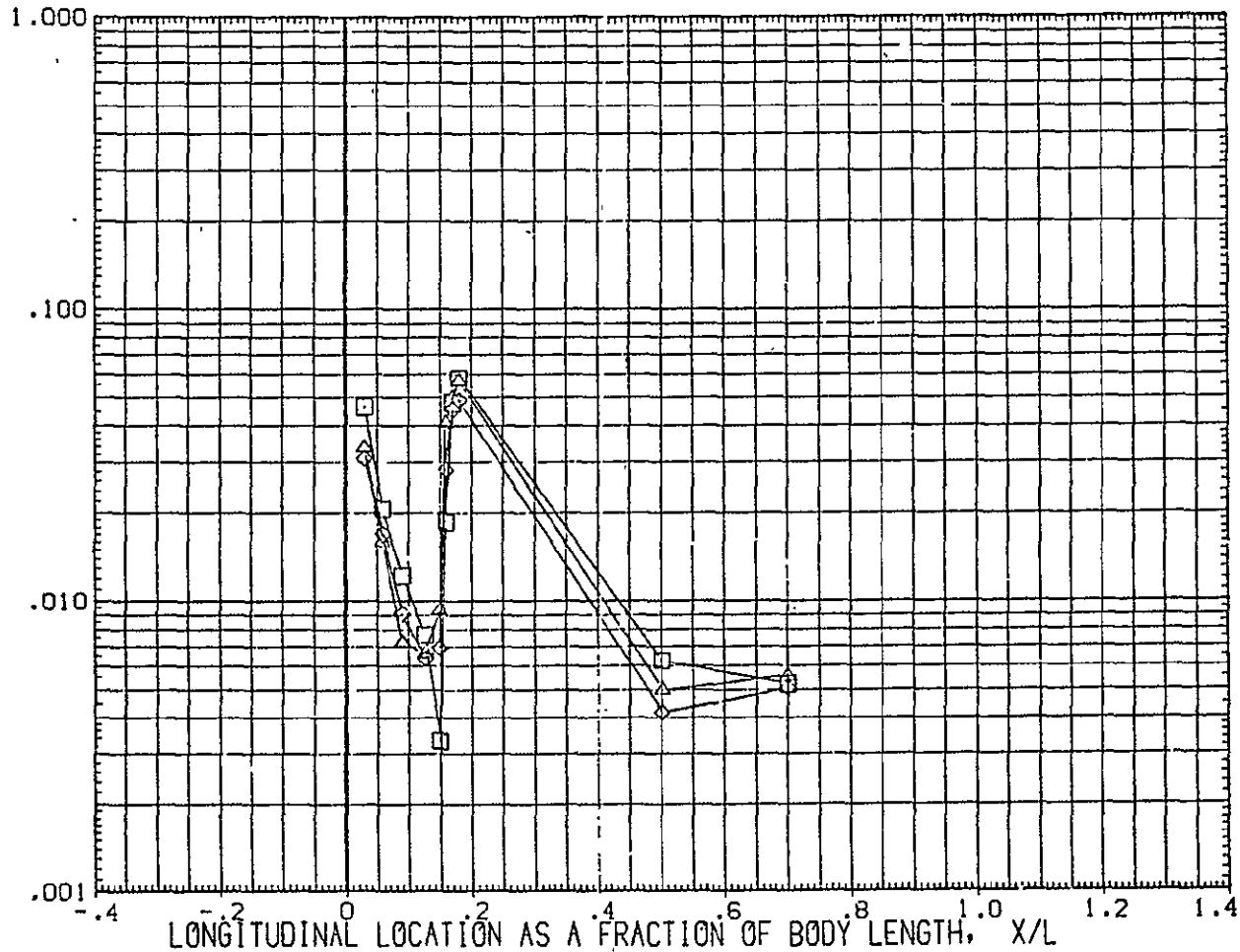


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 10.500 HAW/HT= .900 PHI = 180.000 PAGE 563

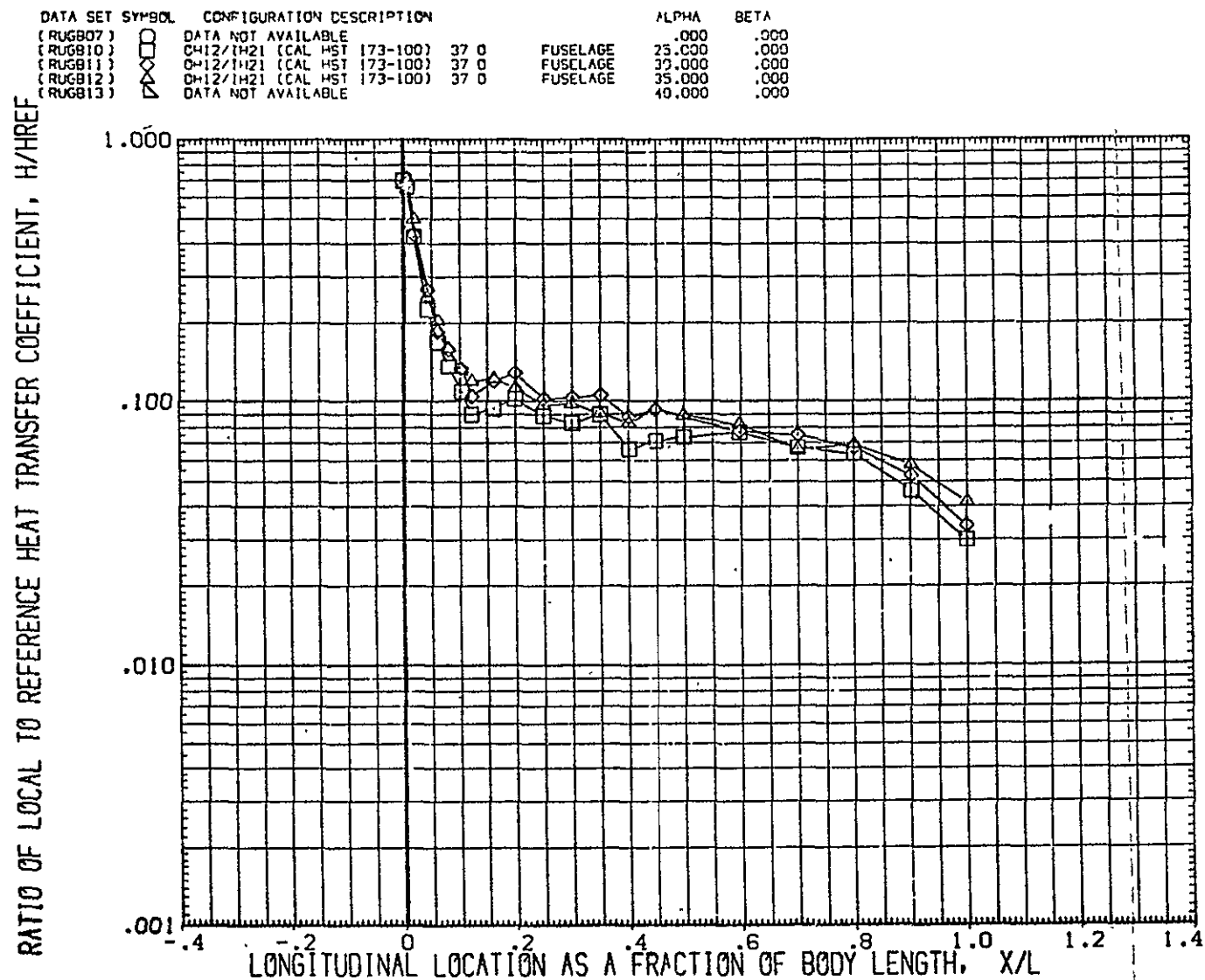


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 10.500 HAW/HT = 1.000 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/TH21 (CAL HST 173-100) 37 0	25.000	.000
(RUGB11)	OH12/TH21 (CAL HST 173-100) 37 0	30.000	.000
(RUGB12)	OH12/TH21 (CAL HST 173-100) 37 0	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

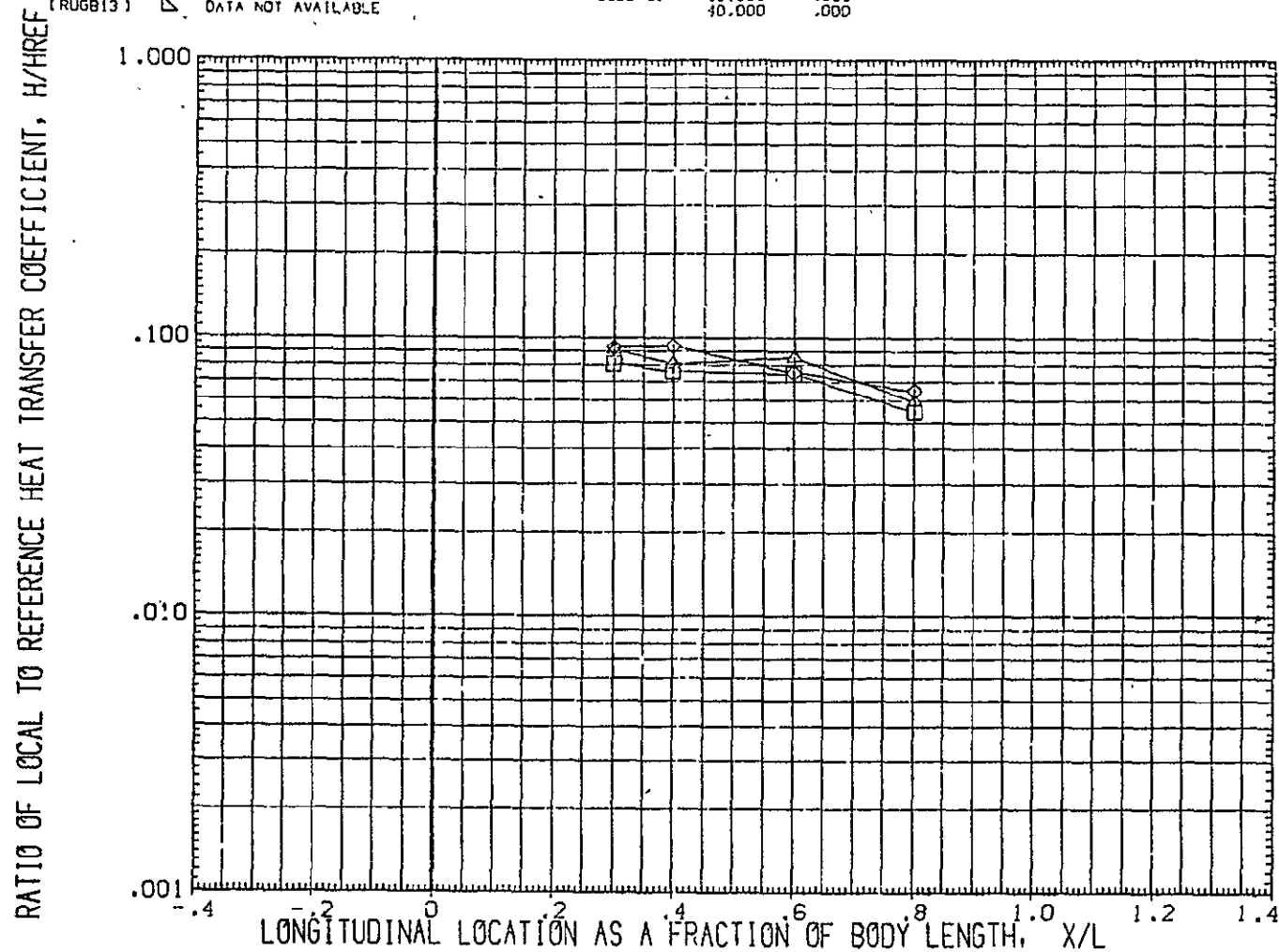


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/HT = 1.000 PHI = 25.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH2/1421 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	OH2/1421 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB12)	OH2/1421 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

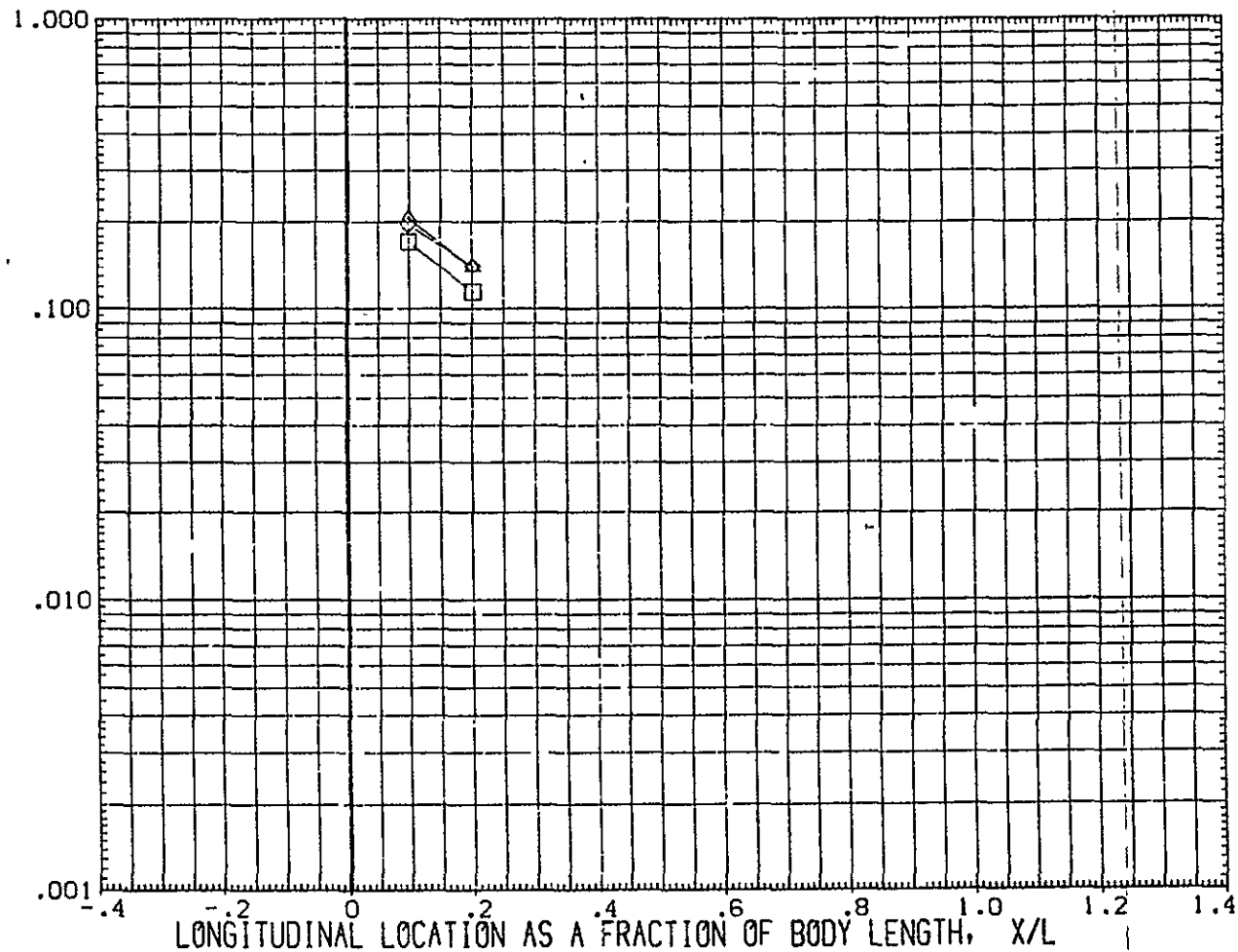


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L1

MACH = 10.500 HAW/HIT = 1.000 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
PUGB07	DATA NOT AVAILABLE	.000	.000
PUGB10	OH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
PUGB11	OH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
PUGB12	OH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
PUGB13	DATA NOT AVAILABLE	40.000	.000

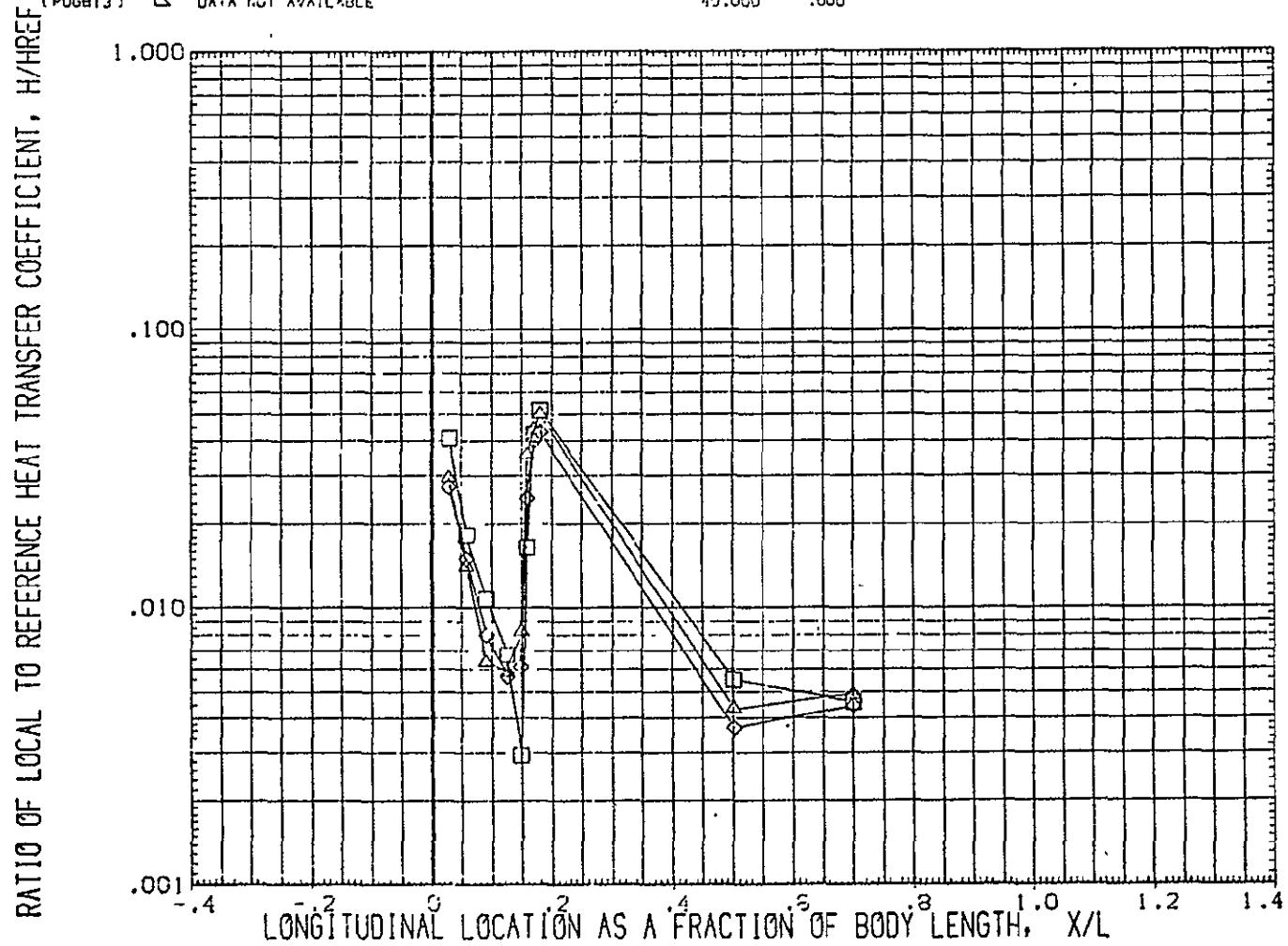


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1'$
MACH = 10.500 $HAW/HT = 1.000$ $PHI = 180.000$ PAGE 567

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGB07)	DATA NOT AVAILABLE	.000	.000
(PUGB10)	CH12/142, LOCAL HST 173-100 37 0 FUSELAGE	25.000	.000
(PUGB11)	CH12/142, LOCAL HST 173-100 37 0 FUSELAGE	30.000	.000
(PUGB12)	CH12/142, LOCAL HST 173-100 37 0 FUSELAGE	35.000	.000
(PUGB13)	DATA NOT AVAILABLE	40.000	.000

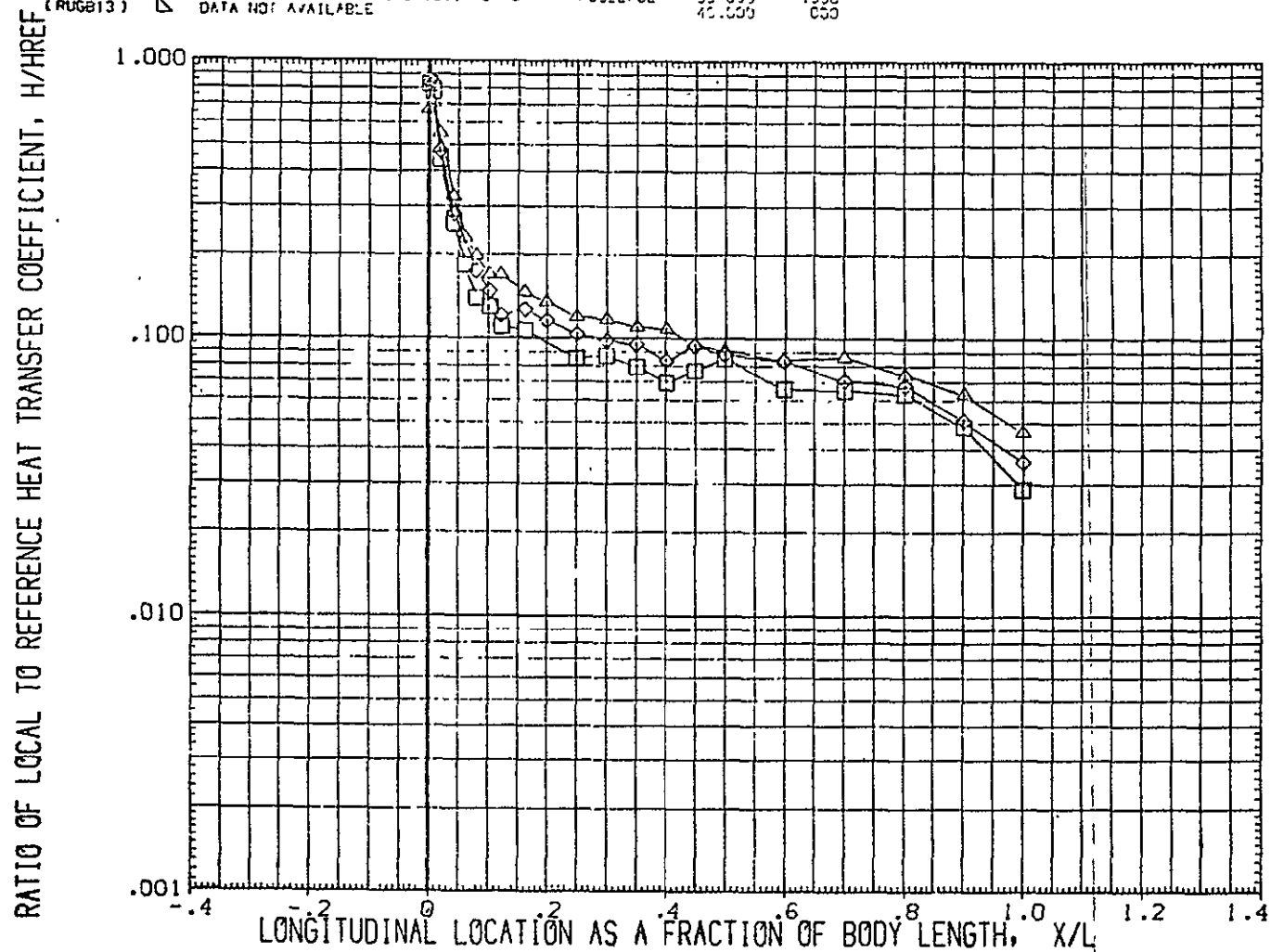


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 12.200 HAW/HT = .850 PHI = .000 PAGE 568.

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000
(RUGB11)	OH12/1H21 (CAL HST 173-100) 37 0	30.000	.000
(RUGB12)	OH12/1H21 (CAL HST 173-100) 37 0	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

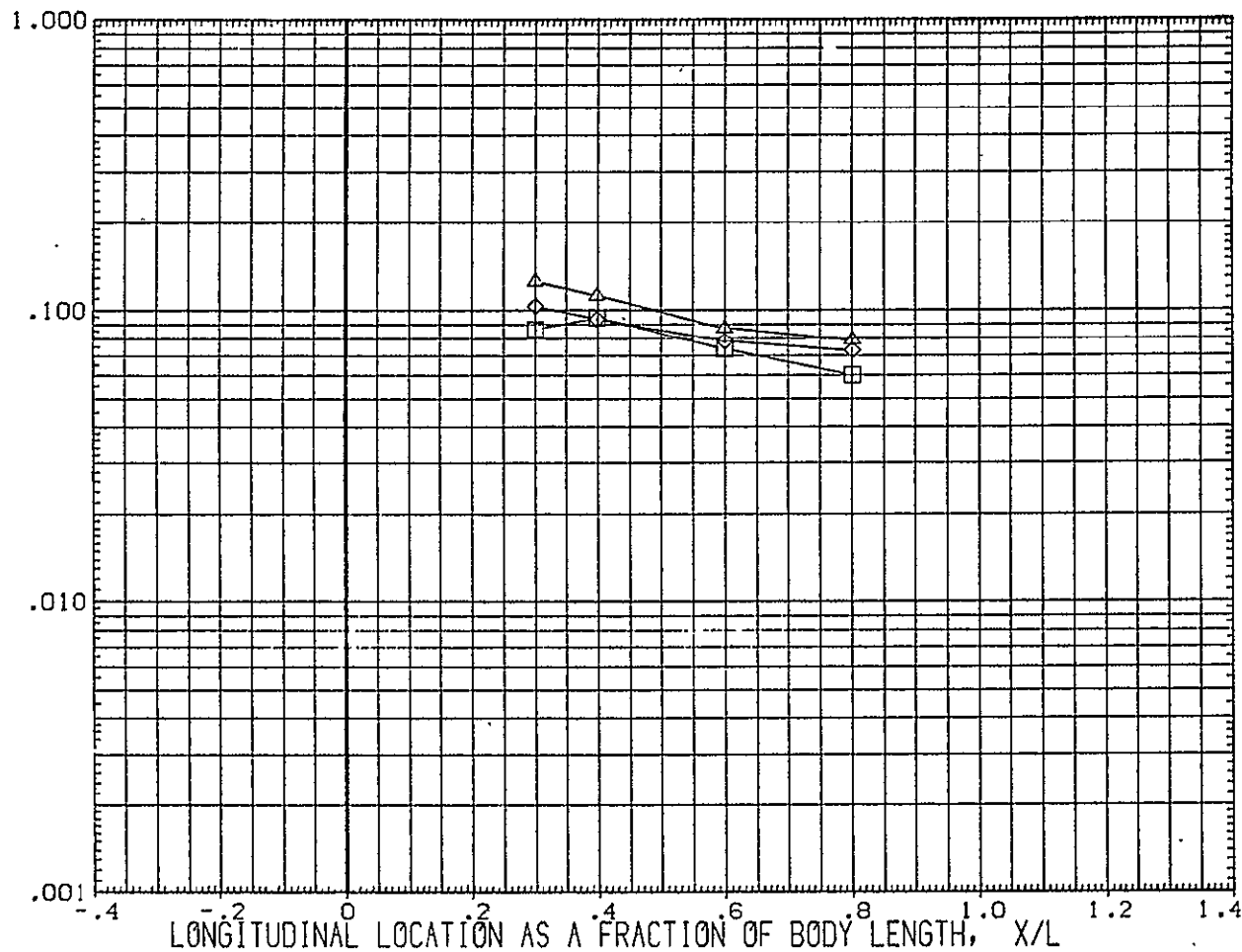


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 12.200 HAW/HT = .850 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE		
(RUGB10)	OH12/IH21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	OH12/IH21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB12)	OH12/IH21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

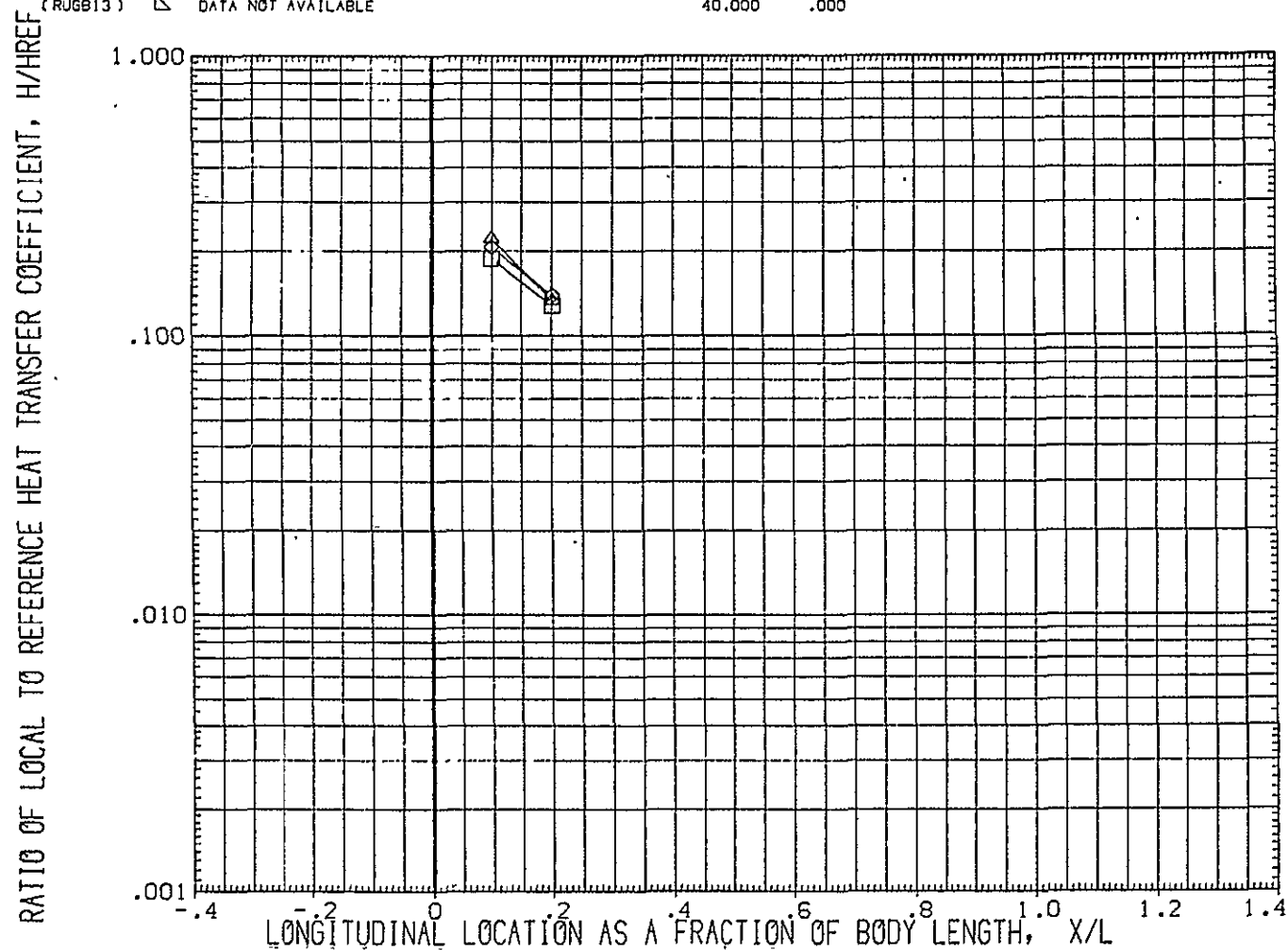


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 12.200 HAW/HT = .850 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	CH12/142: (CAL HST 173-100) 37 0	25.000	.030
(RUGB11)	CH12/142: (CAL HST 173-100) 37 0	30.000	.030
(PUGB12)	CH12/142: (CAL HST 173-100) 37 0	35.000	.030
(RUGB13)	DATA NOT AVAILABLE	40.000	.030

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

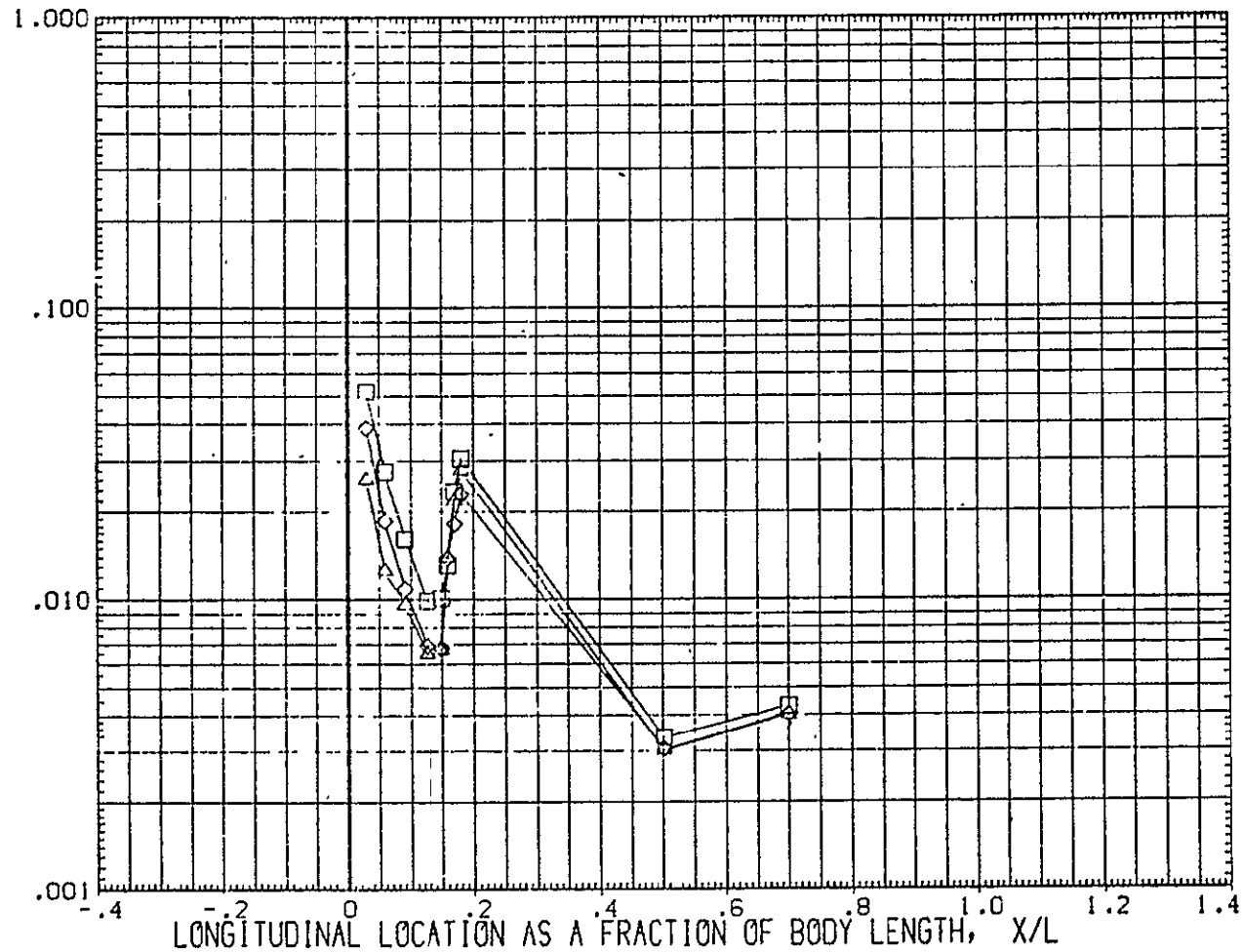


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 12.200 HAW/HT = .850 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
RUGB07	DATA NOT AVAILABLE	.000	.000
RUGB10	CH12/TH21 (CAL HST 173-100) 37 0	25.000	.000
RUGB11	CH12/TH21 (CAL HST 173-100) 37 0	30.000	.000
RUGB12	CH12/TH21 (CAL HST 173-100) 37 0	35.000	.000
RUGB13	DATA NOT AVAILABLE	40.000	.000

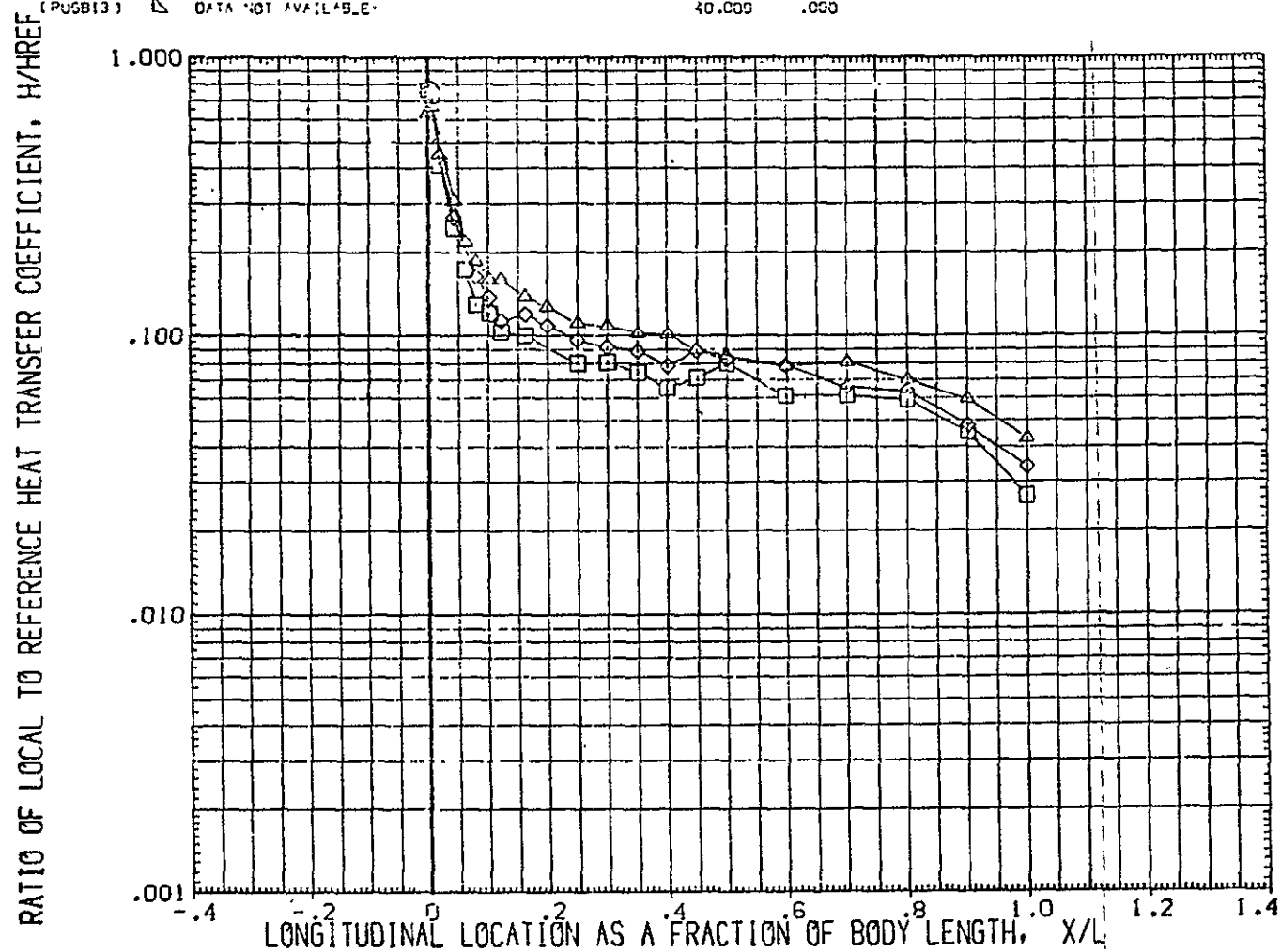


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 12.200 HAW/HT = .900 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PU5807)	DATA NOT AVAILABLE	.000	.000
(PU5810)	OH12/IH21 (CAL HST 173-100) 37 0	25.000	.000
(RUG811)	OH12/IH21 (CAL HST 173-100) 37 0	30.000	.000
(RUG812)	OH12/IH21 (CAL HST 173-100) 37 0	35.000	.000
(RUG813)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

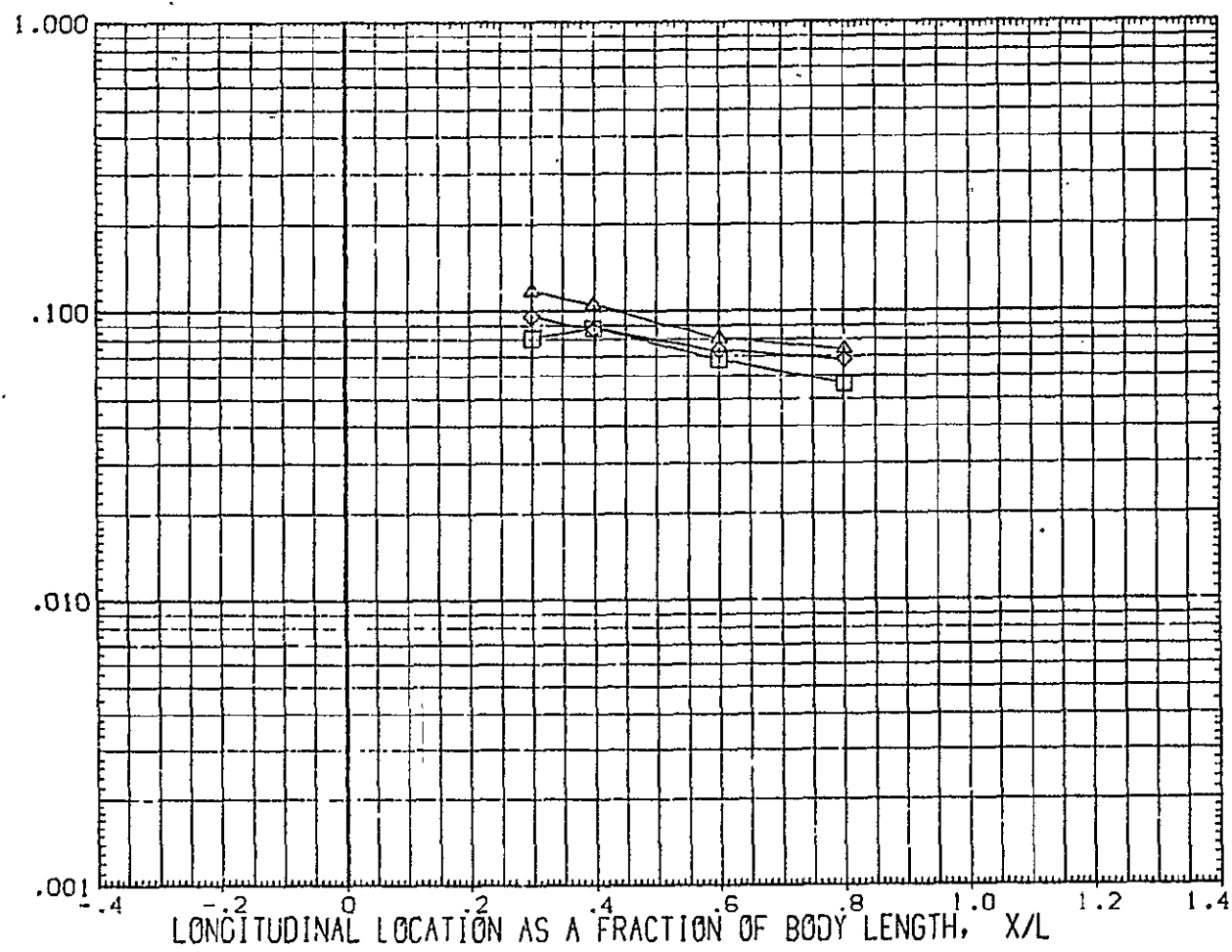


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $PN/L1$

MACH = 12.200 $HAW/HI = .900$ PHI = 25.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000
(RUGB11)	OH12/1H21 (CAL HST 173-100) 37 0	30.000	.000
(RUGB12)	CH12/1H21 (CAL HST 173-100) 37 0	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

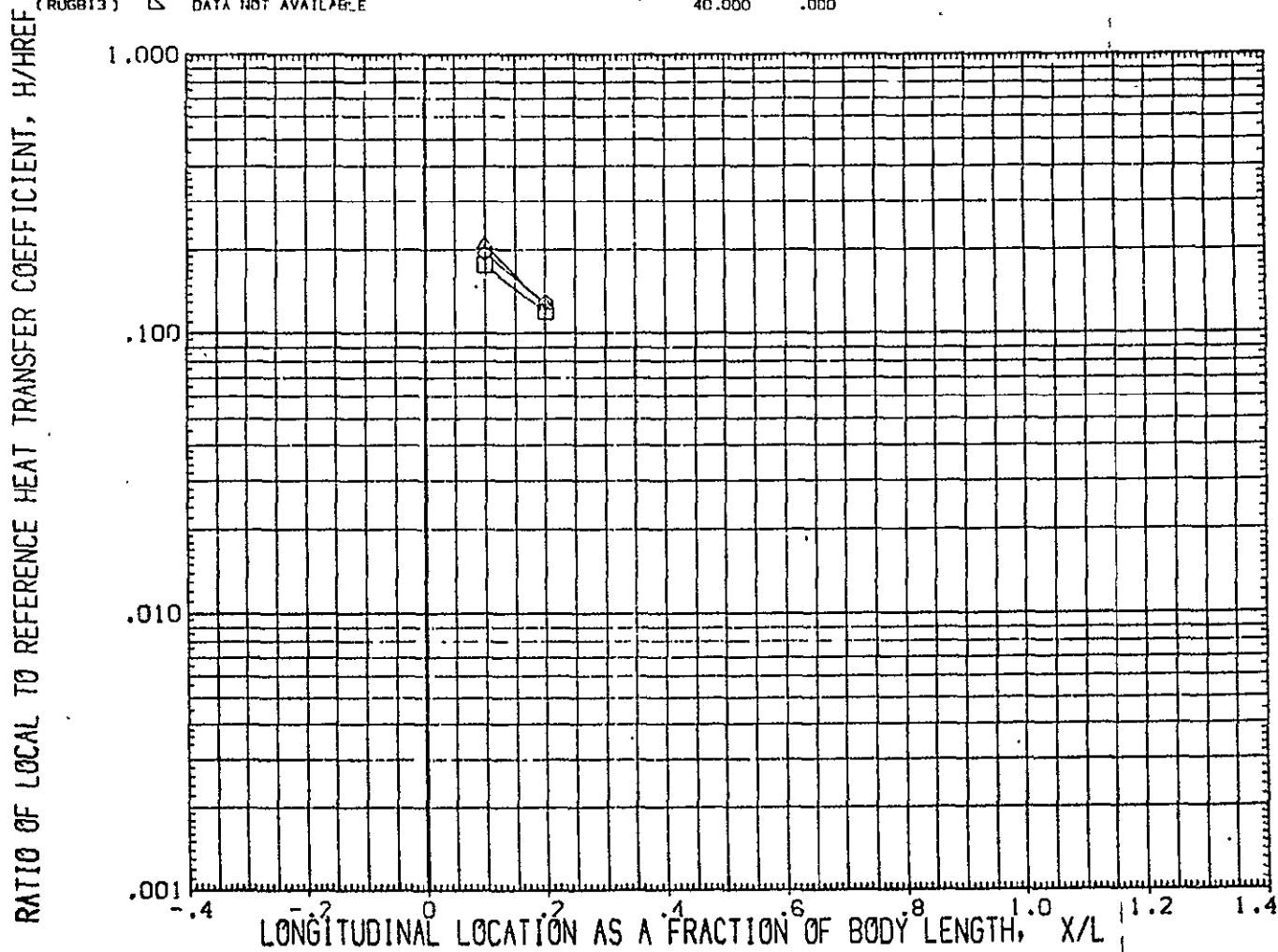


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 12.200 HAW/HT = .900 PHI = 30.000

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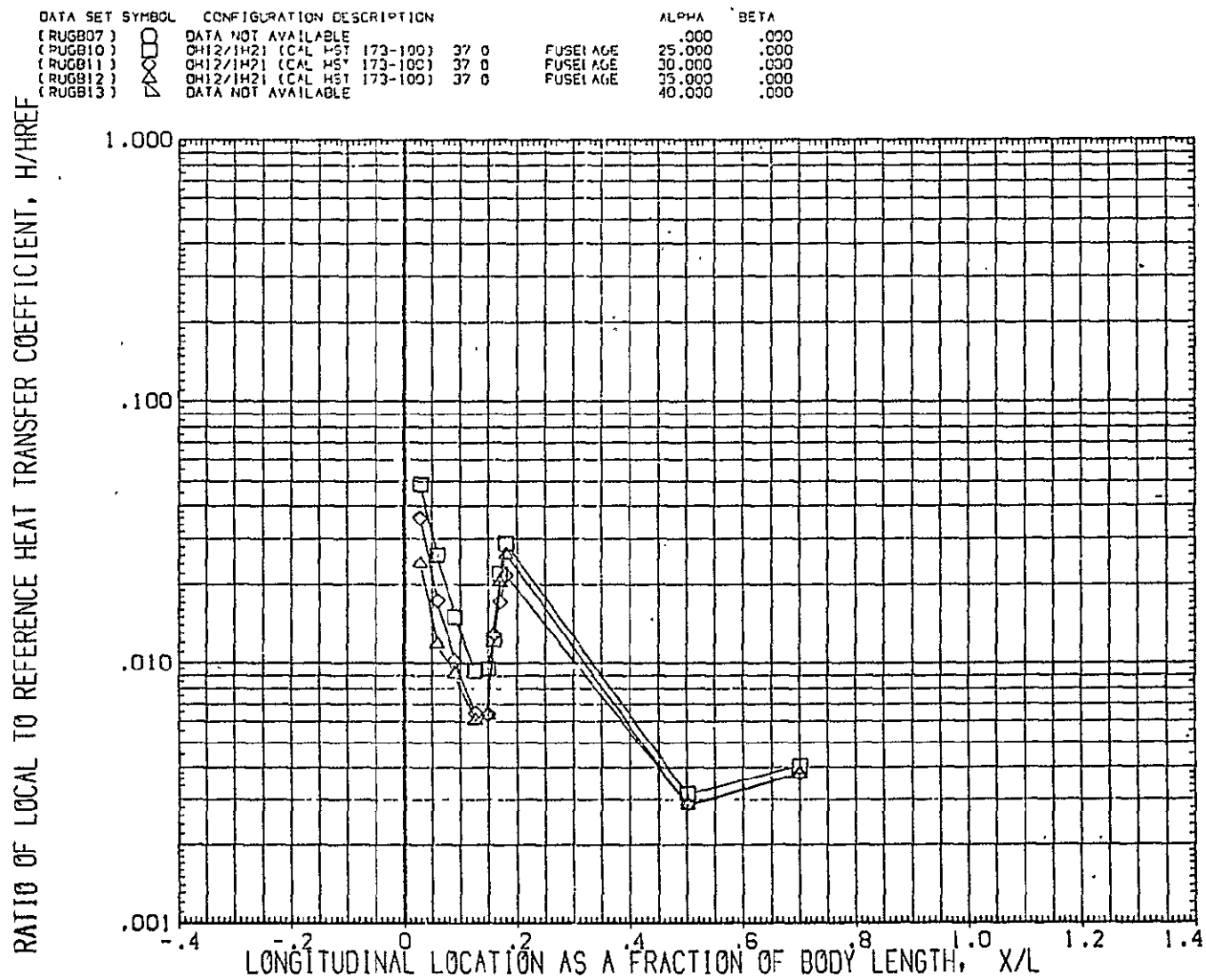


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L_1
MACH = 12.200 HAW/HT = .900 PHI = 180.000 PAGE 575

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000
(RUGB11)	OH12/1H21 (CAL HST 173-100) 37 0	30.000	.000
(RUGB12)	OH12/1H21 (CAL HST 173-100) 37 0	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

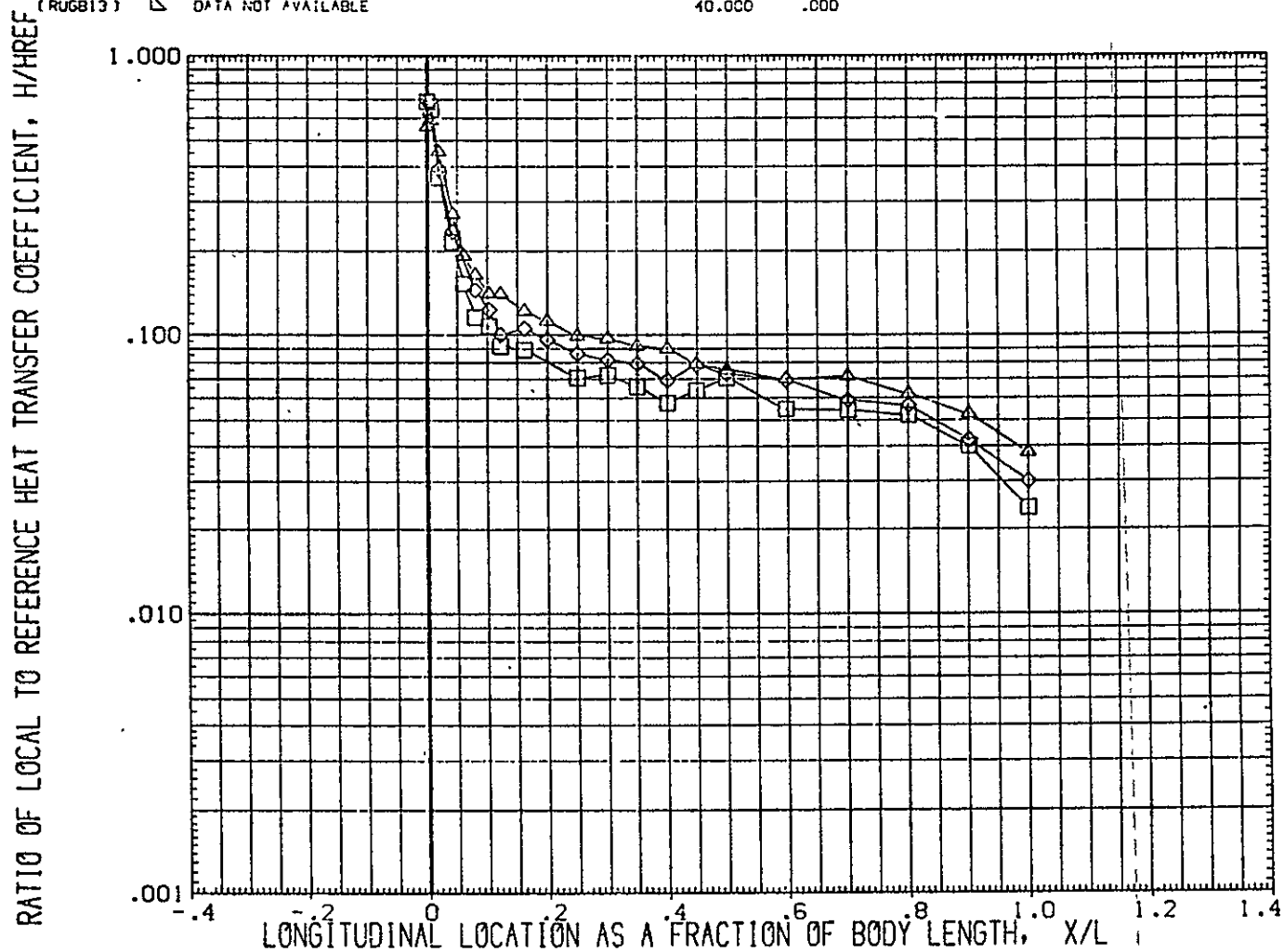


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 12.200 HAW/HT= 1.000 PHI = .000

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	□	DATA NOT AVAILABLE	.000	.000
(RUGB10)	◇	CH12/1421 (CAL HST 173-100) 37 0	25.000	.000
(RUGB11)	◇	CH12/1421 (CAL HST 173-100) 37 0	30.000	.000
(RUGB12)	△	CH12/1421 (CAL HST 173-100) 37 0	35.000	.000
(RUGB13)	△	DATA NOT AVAILABLE	40.000	.000

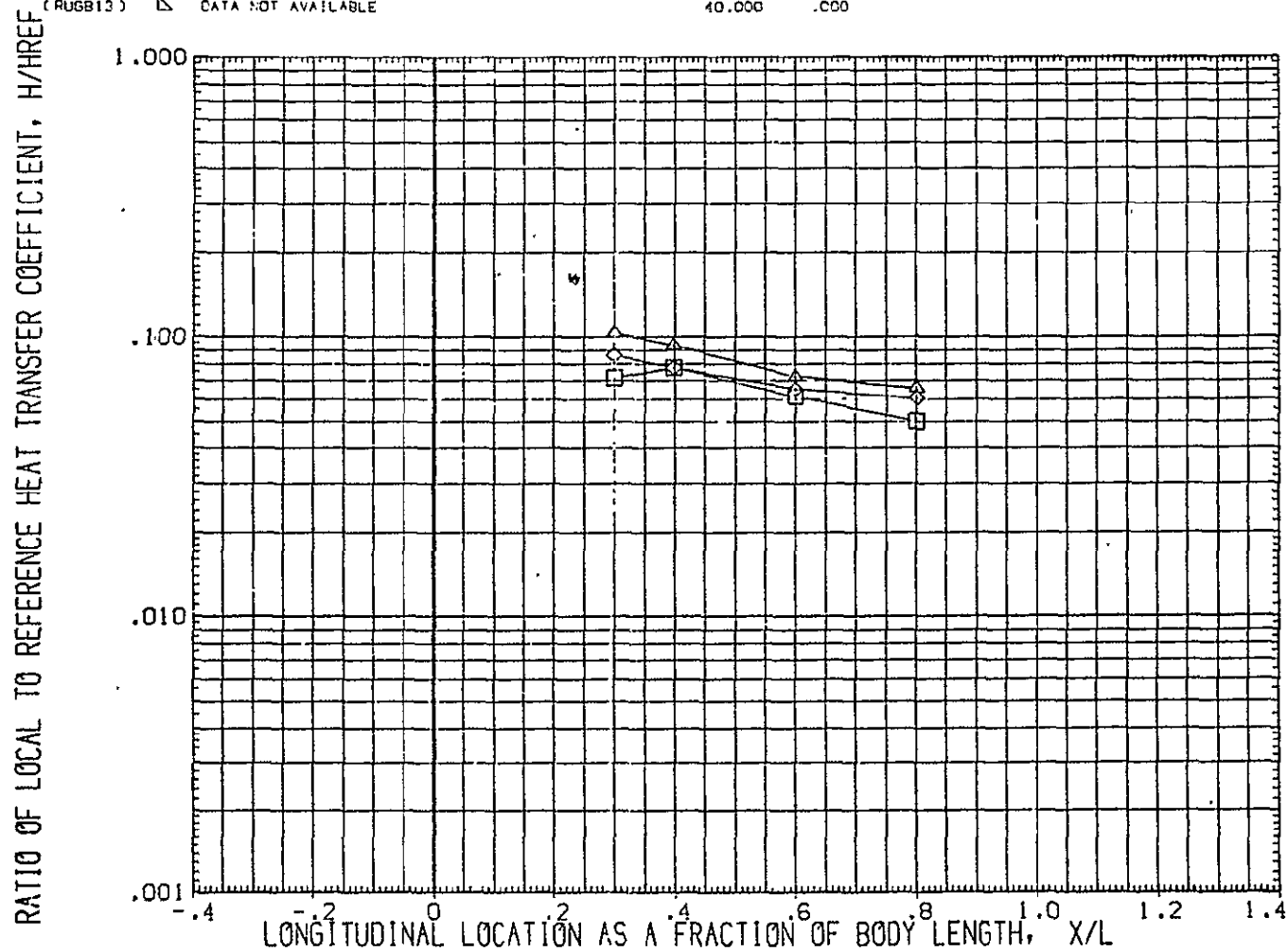


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 12.200 HAW/HT = 1.000 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	DATA NOT AVAILABLE	.000	.000
(RUGB10)	0412/1421 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	0412/1421 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB12)	0412/1421 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

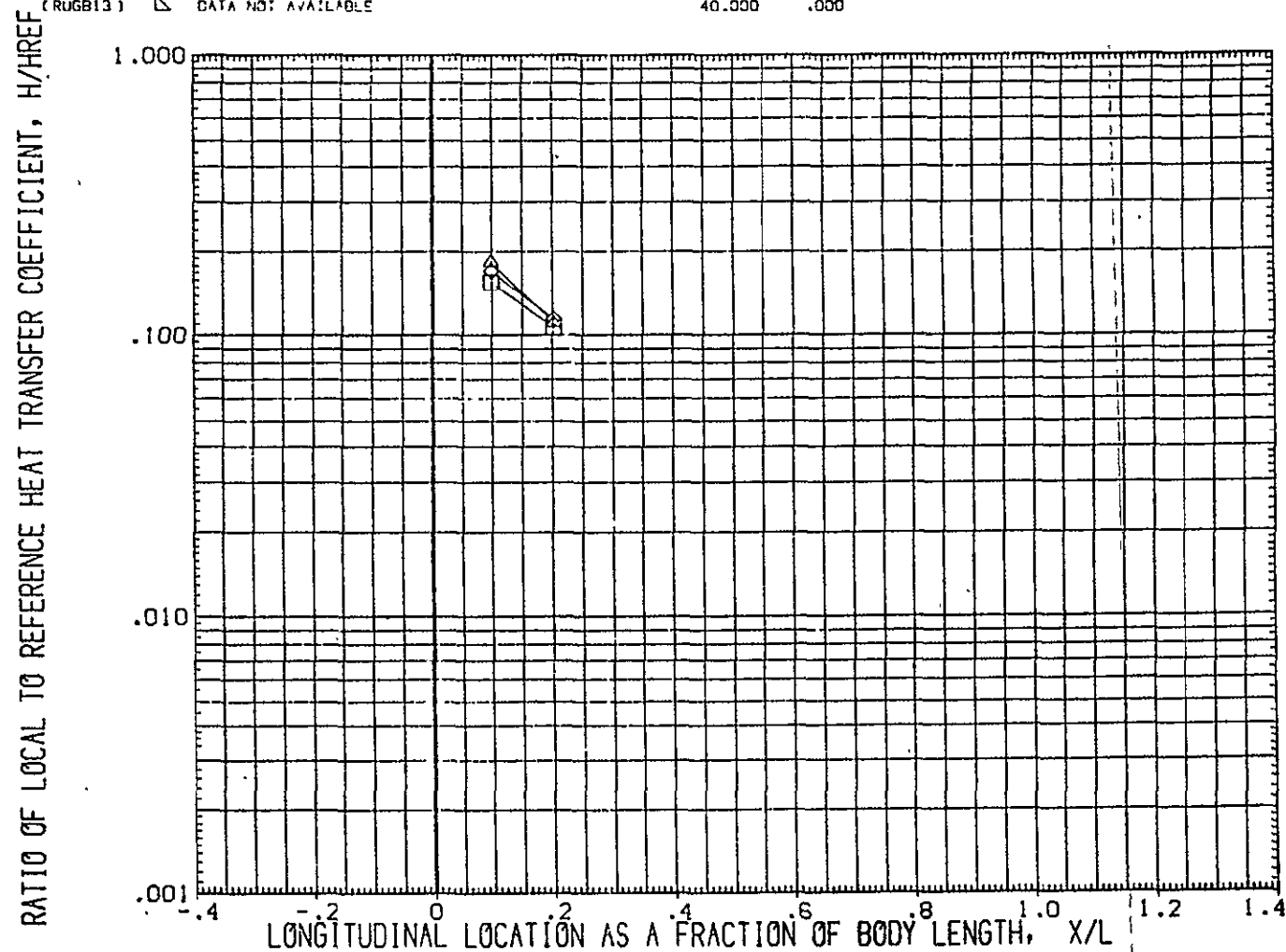


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/LI'

MACH = 12.200 HAW/HT = 1.000 PHI = 30.000

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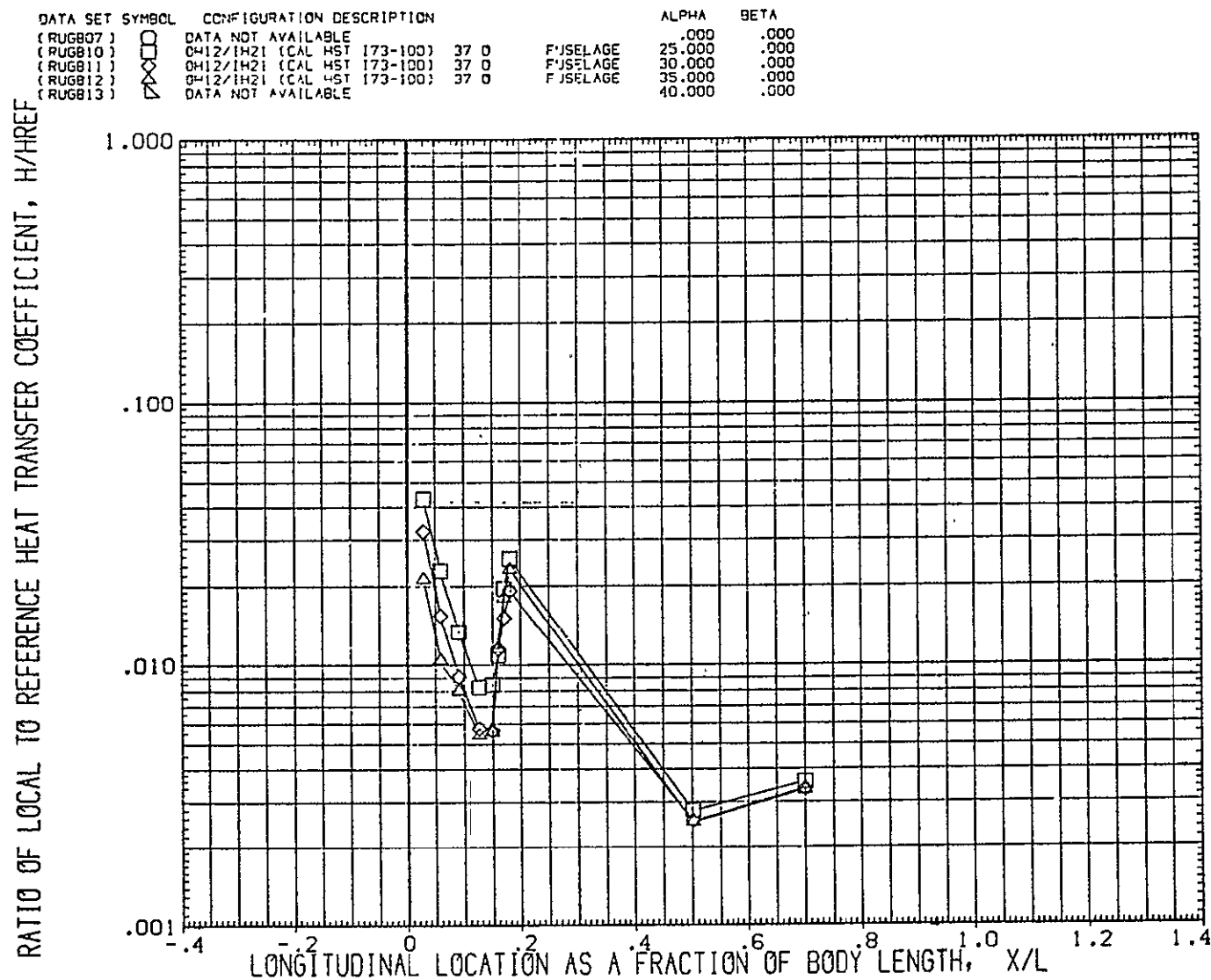


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 12.200 $H_{AW}/H_1 = 1.000$ $PHI = 130.000$ PAGE 579

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB12)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

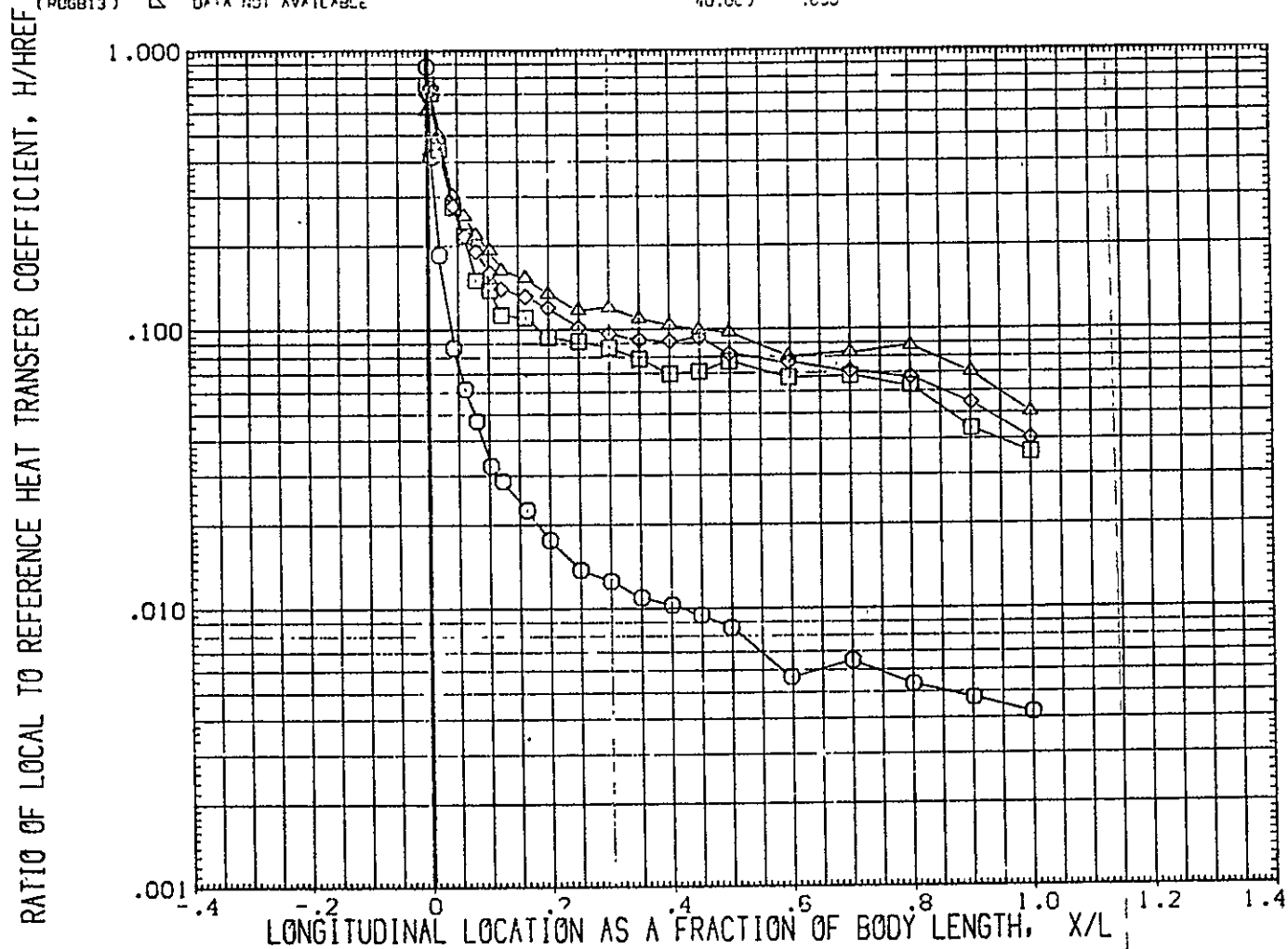


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT= .850 PHI = .000

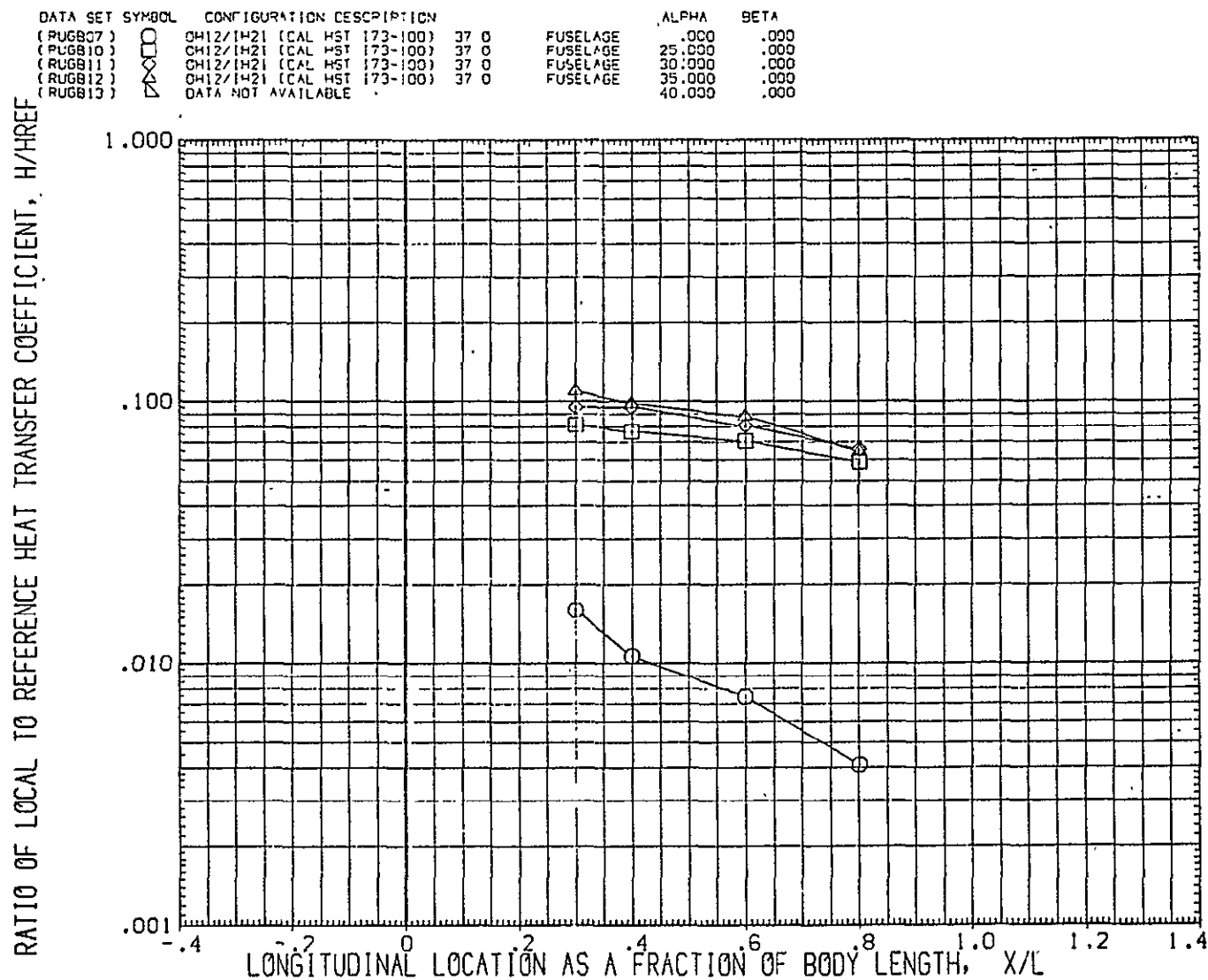


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 16.000 HAW/HT = .850 PHI = 25.000 PAGE 581

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	CH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
(RUGB10)	CH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	CH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB12)	CH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	CH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	40.000	.000
	DATA NOT AVAILABLE		

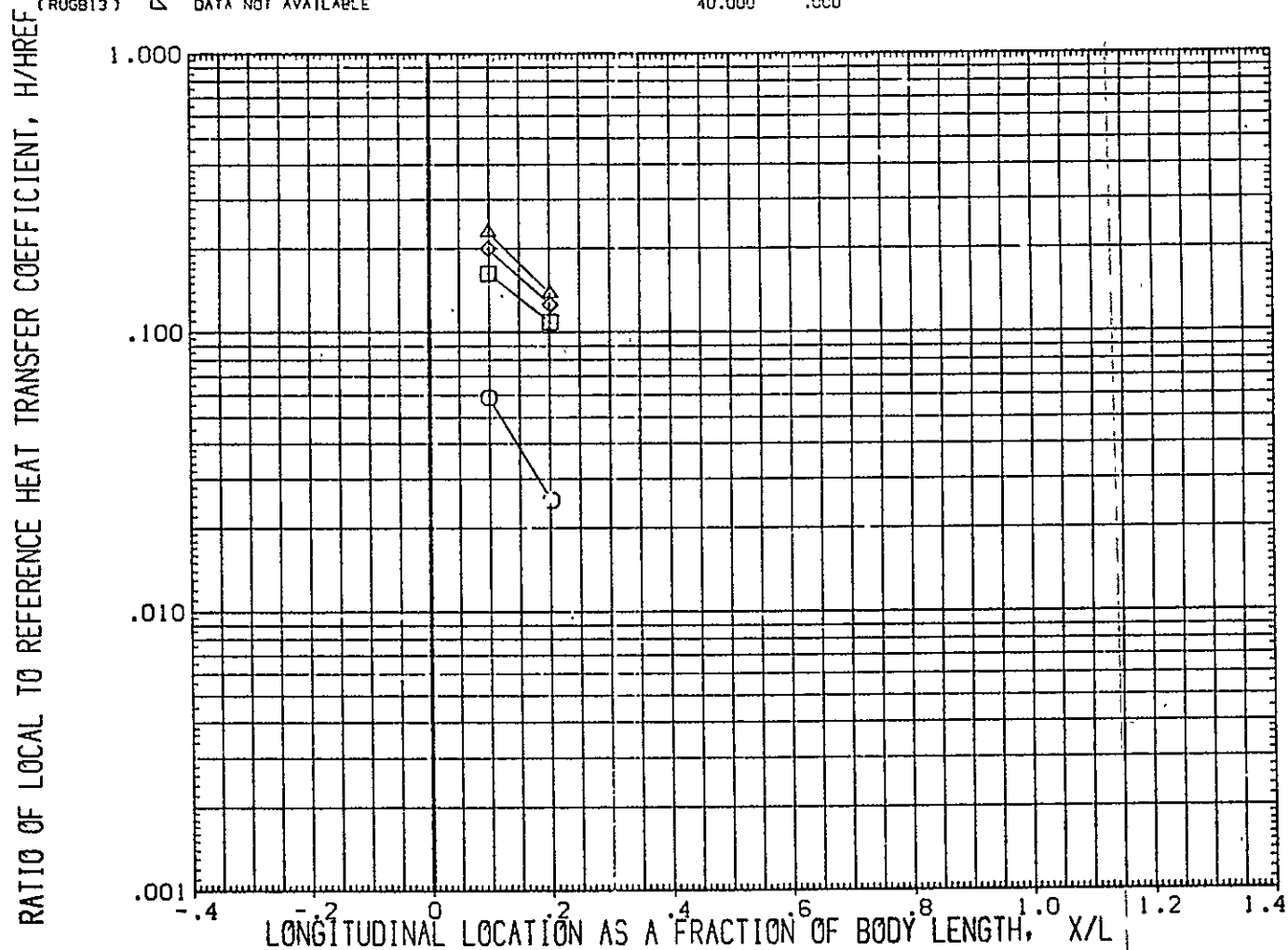


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L1

MACH = 16.000 HAW/HT= .850 PHI = 30.000

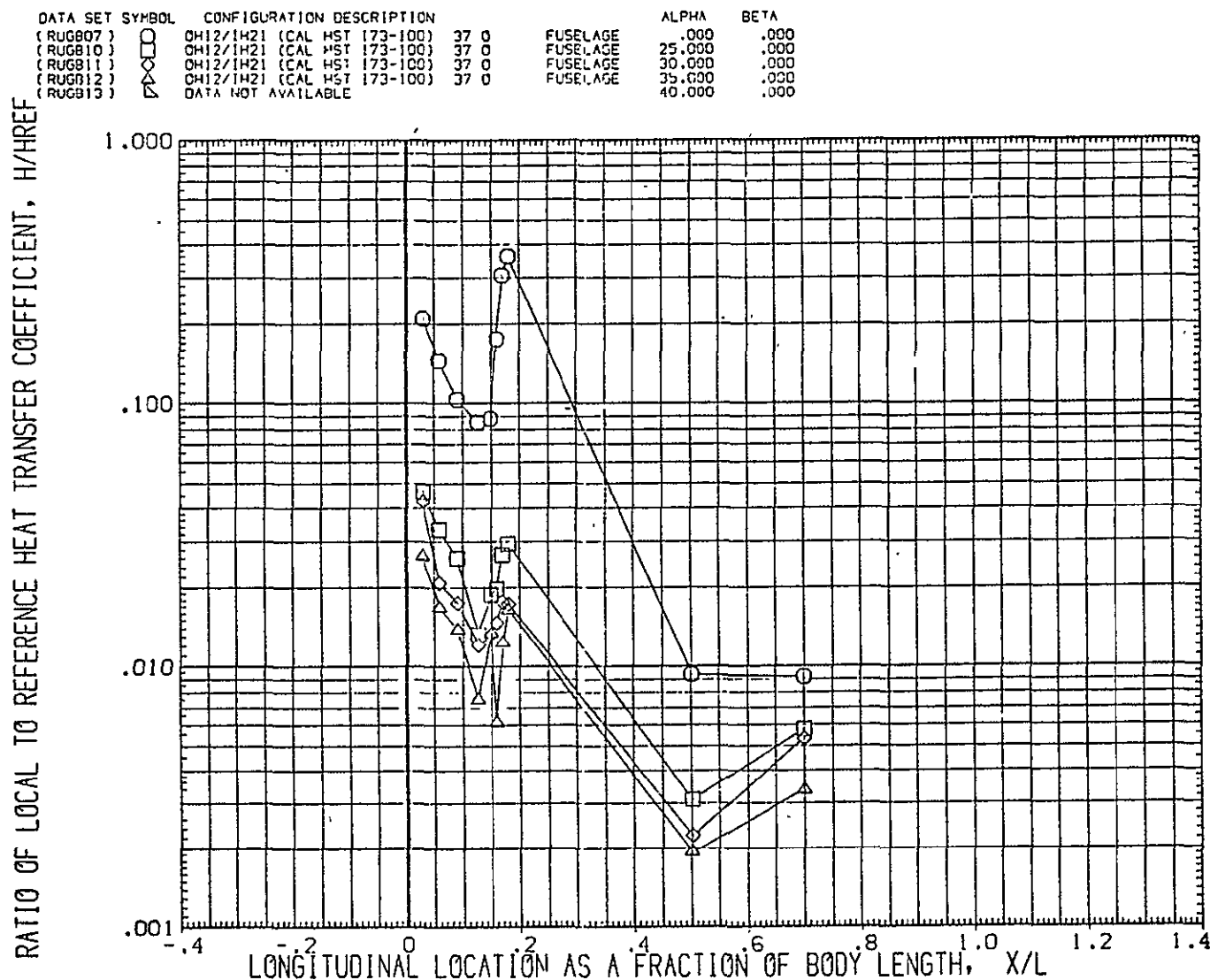


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = .850 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG307)	CH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
(RUG310)	CH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUG311)	CH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUG312)	CH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUG313)	CH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	40.000	.000
	DATA NOT AVAILABLE		

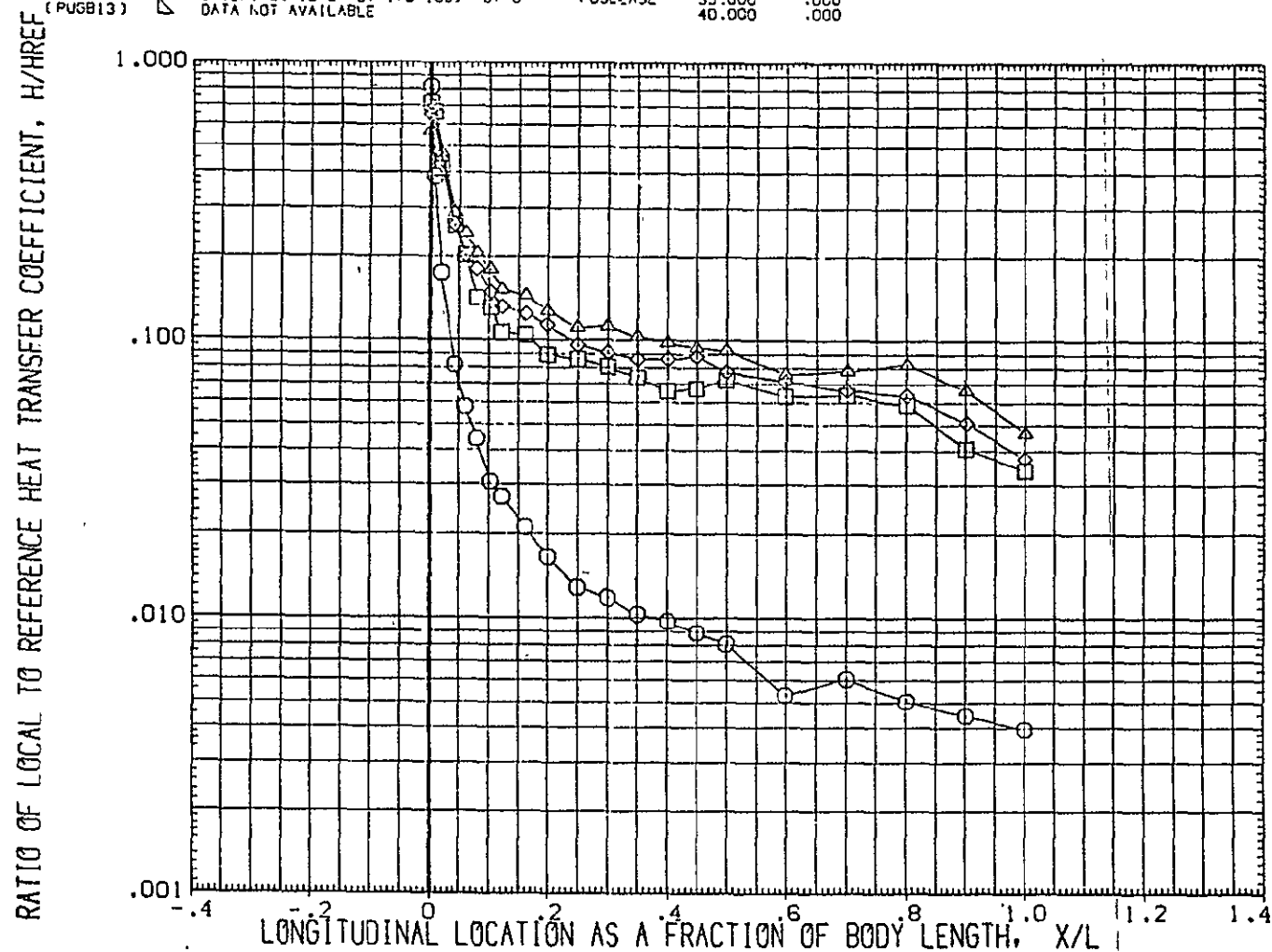


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = .900 PHI = .000

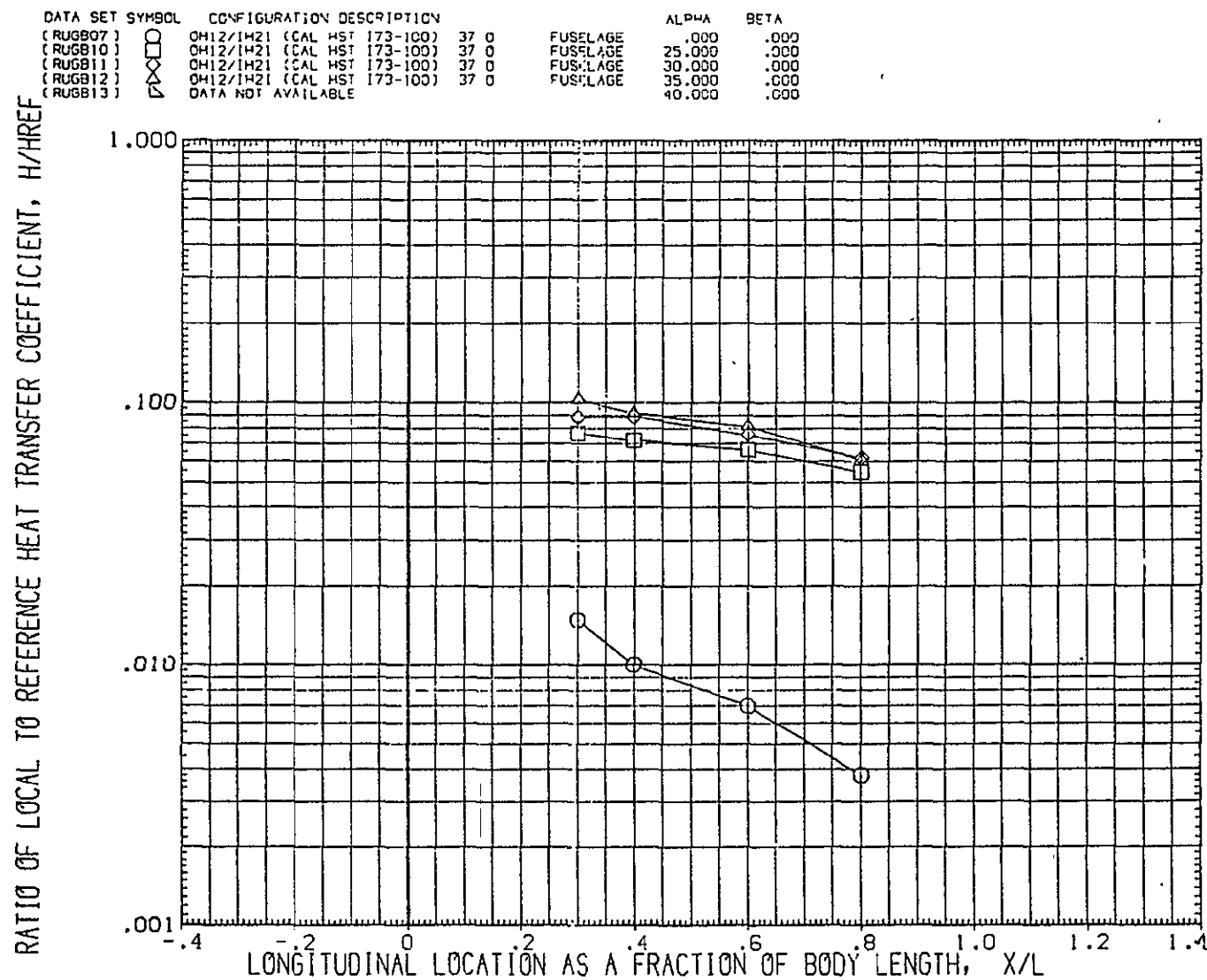


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = .900 PHI = 25.000

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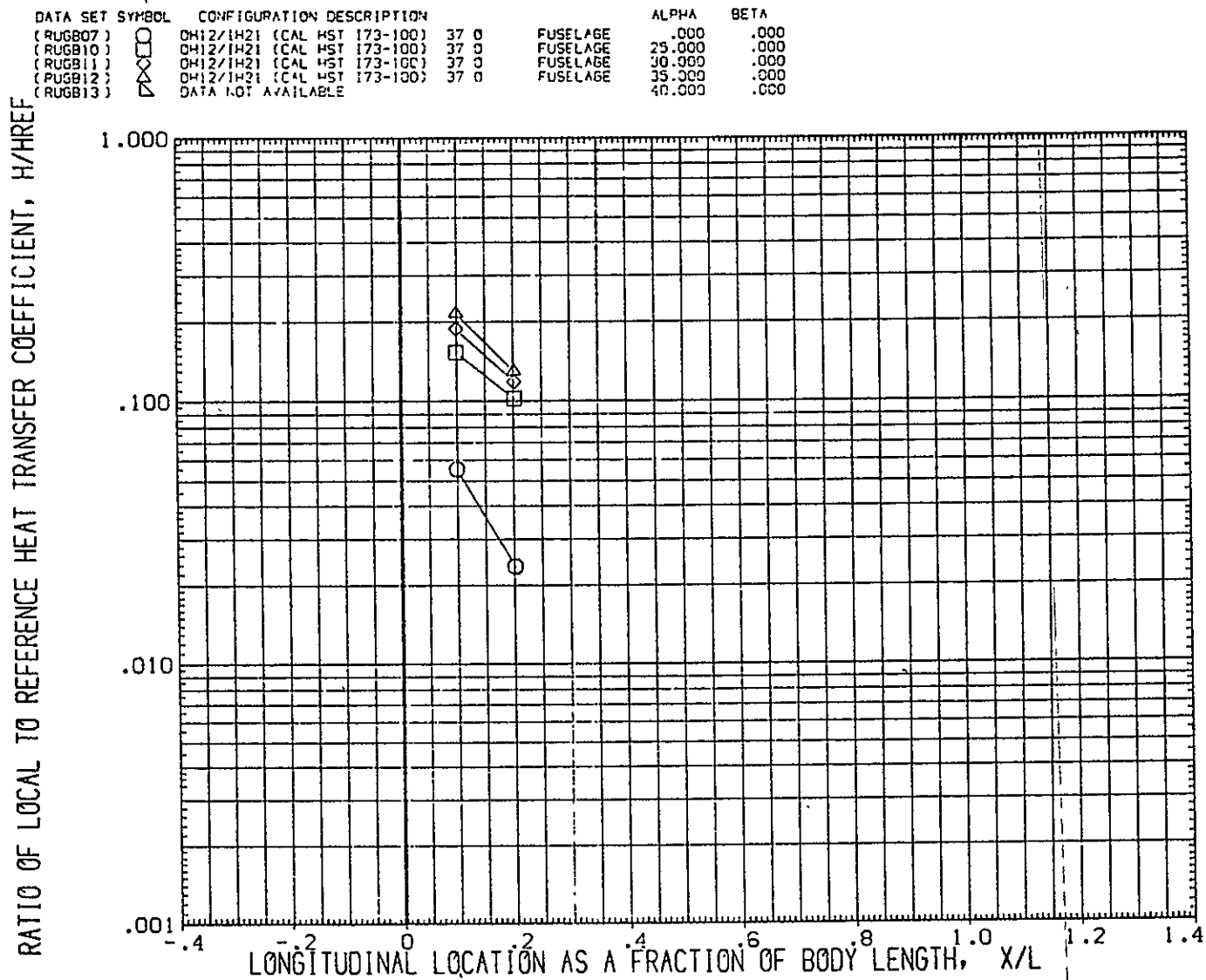


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L_1
MACH = 16.000 HAW/HT = .900 PHI = 30.000 PAGE 586

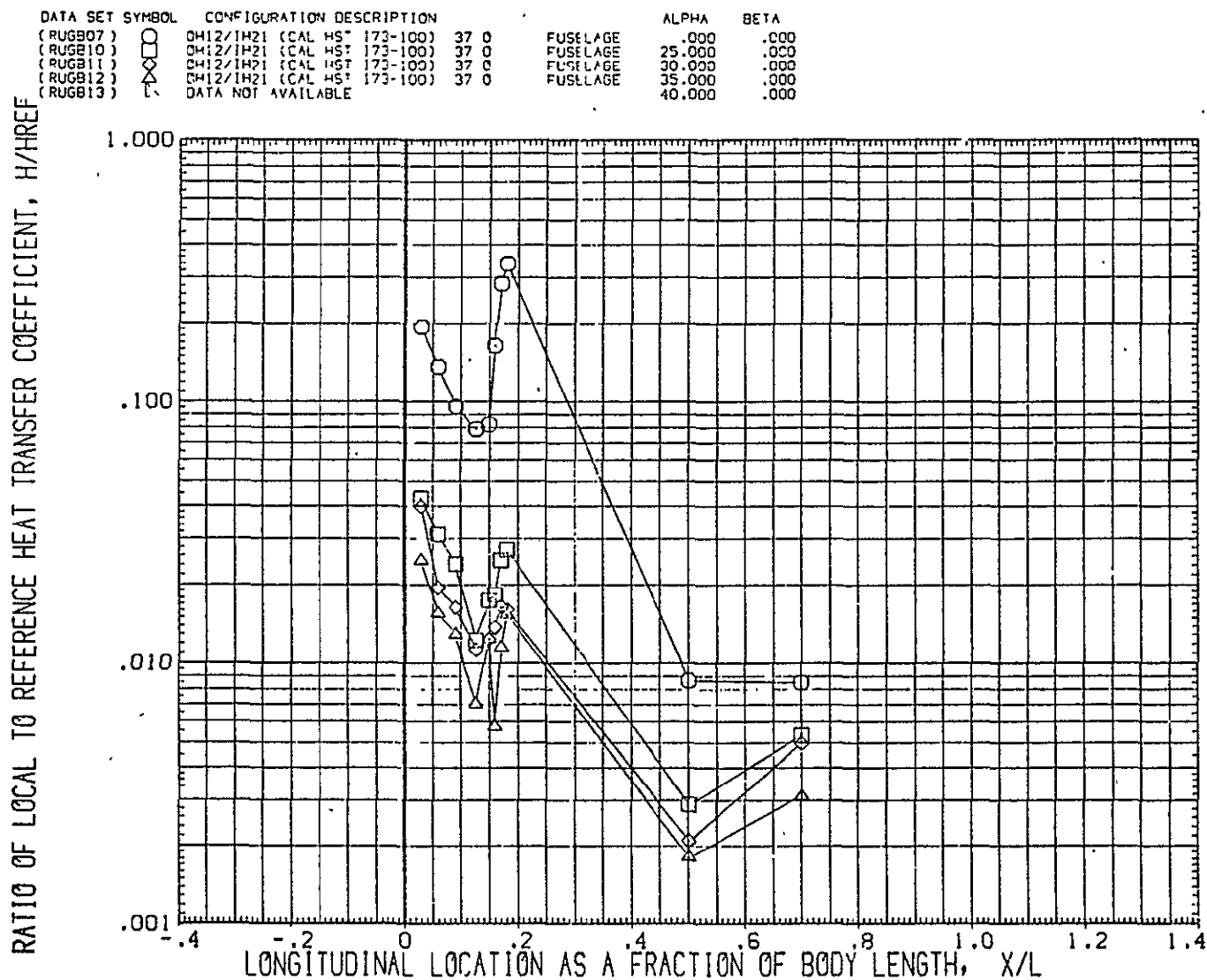


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 16.000 HAW/HT = .900 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
RUG907	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
RUG810	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
RUG811	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
RUG812	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
RUG813	DATA NOT AVAILABLE	40.000	.000

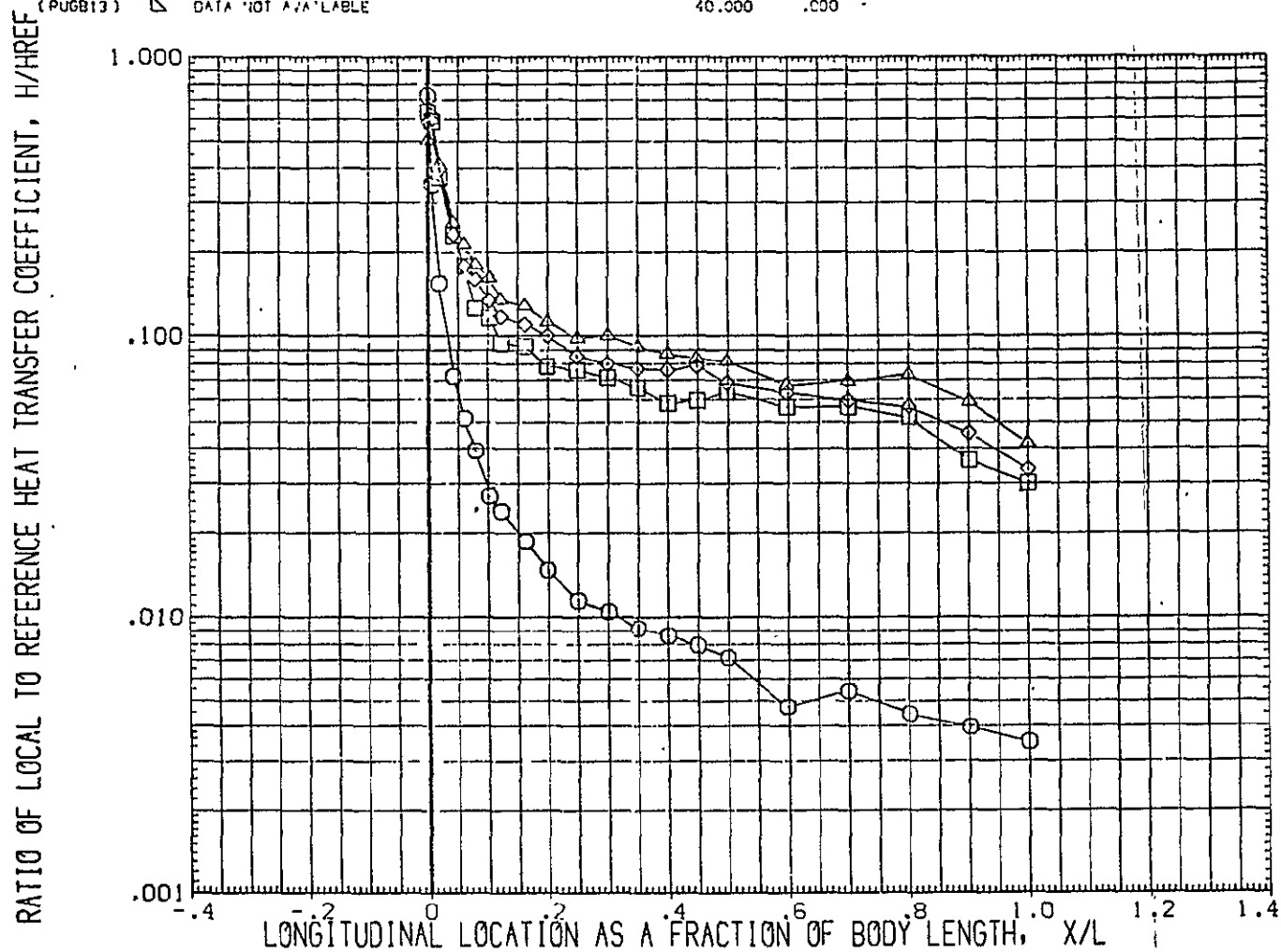


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L1
MACH = 16.000 HAW/HT= 1.000 PHI = .000 PAGE 588

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	25.000
(RUGB11)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	30.000
(RUGB12)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	35.000
(RUGB13)	DATA NOT AVAILABLE	FUSELAGE	40.000

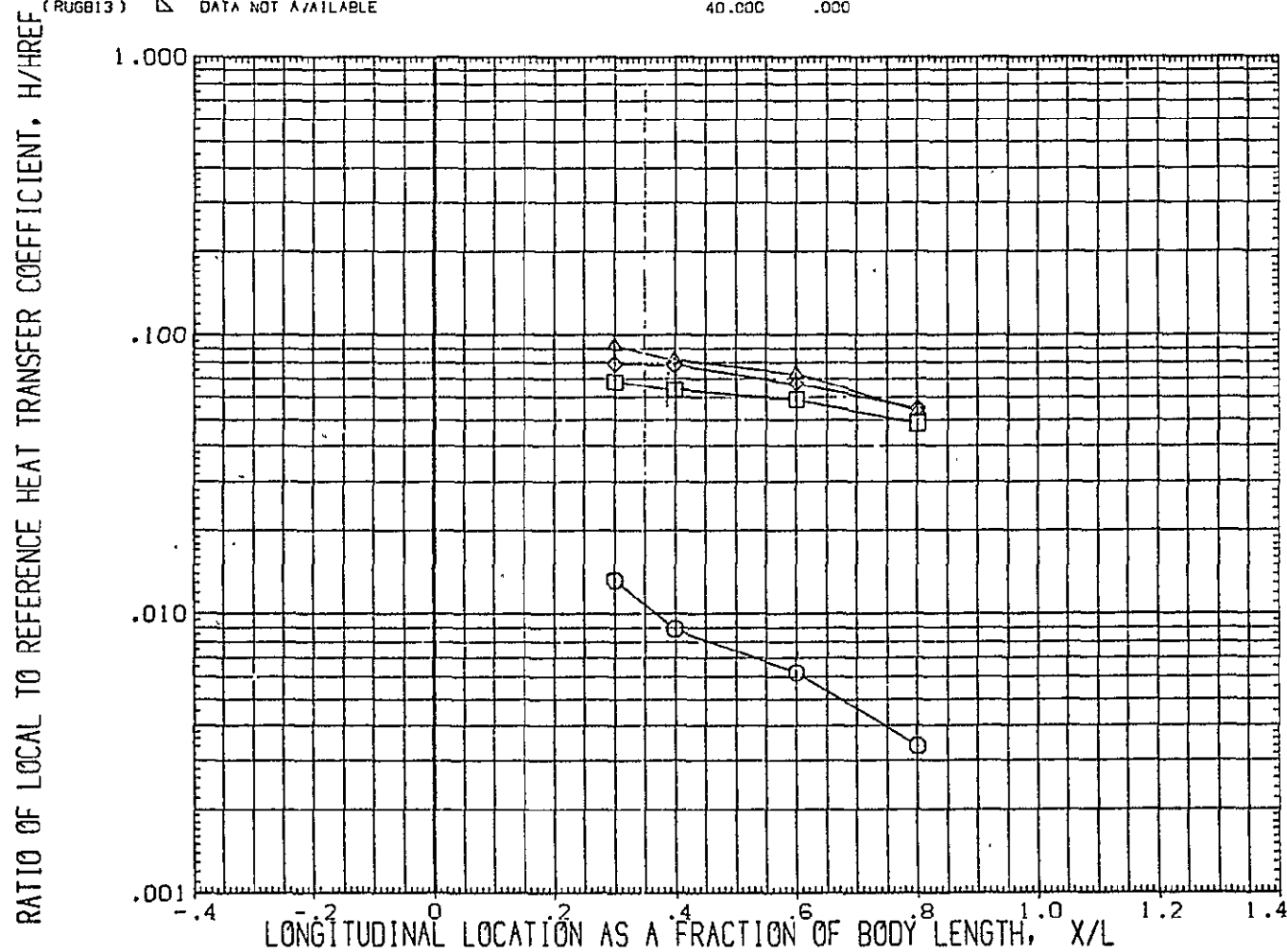


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = 1.000 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUGB10)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE	25.000
(RUGB11)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE	30.000
(RUGB12)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE	35.000
(RUGB13)	DATA NOT AVAILABLE	FUSELAGE	40.000

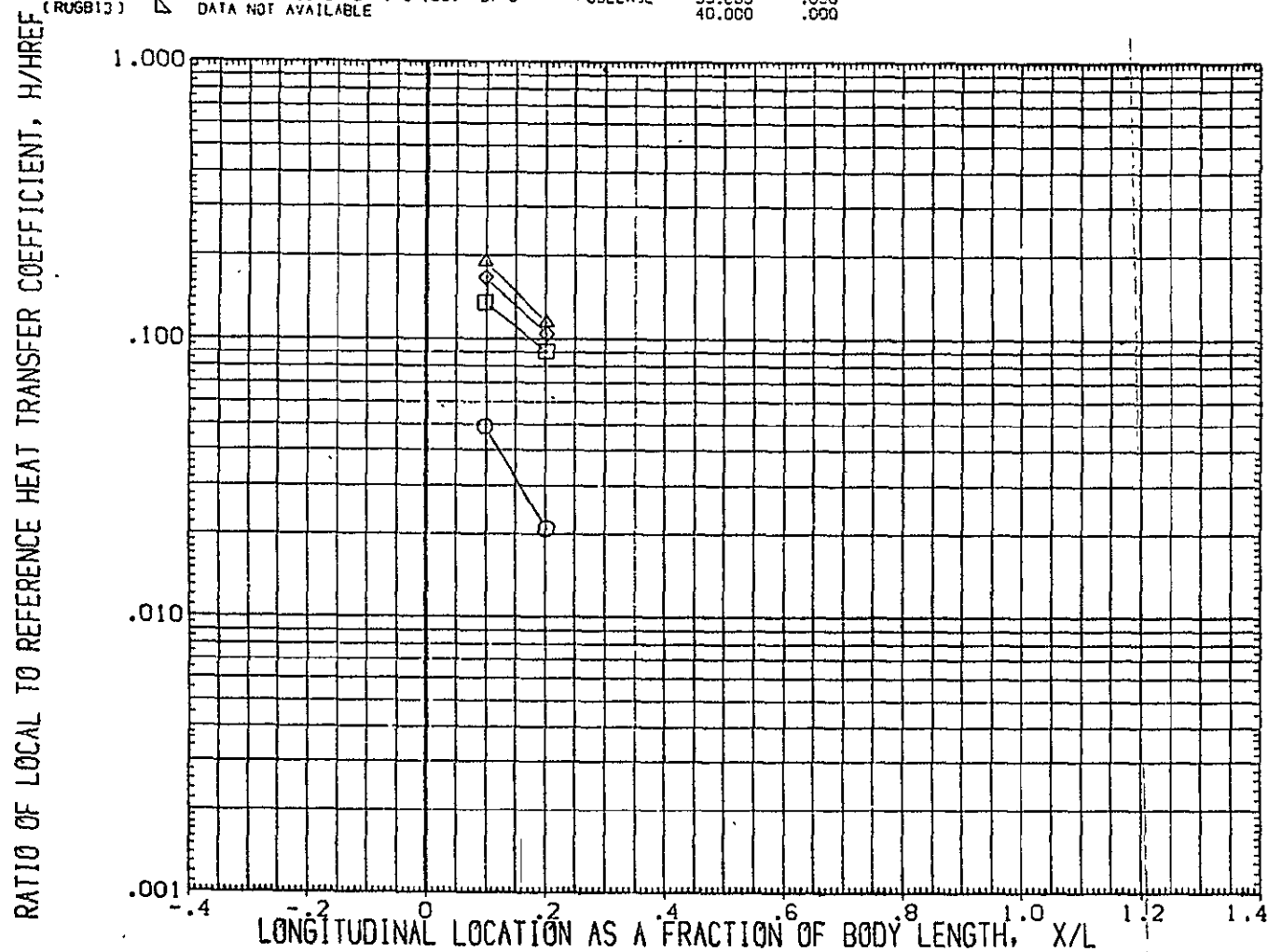


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = 1.000 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGB07)	CH12/1H21 (CAL HST 173-100) 37 0	FUSEL AGE .000	.000
(RUGB10)	CH12/1H21 (CAL HST 173-100) 37 0	FUSEL AGE 25.000	.000
(RUGB11)	CH12/1H21 (CAL HST 173-100) 37 0	FUSEL AGE 30.000	.000
(RUGB12)	CH12/1H21 (CAL HST 173-100) 37 0	FUSEL AGE 35.000	.000
(RUGB13)	DATA NOT AVAILABLE	FUSEL AGE 40.000	.000

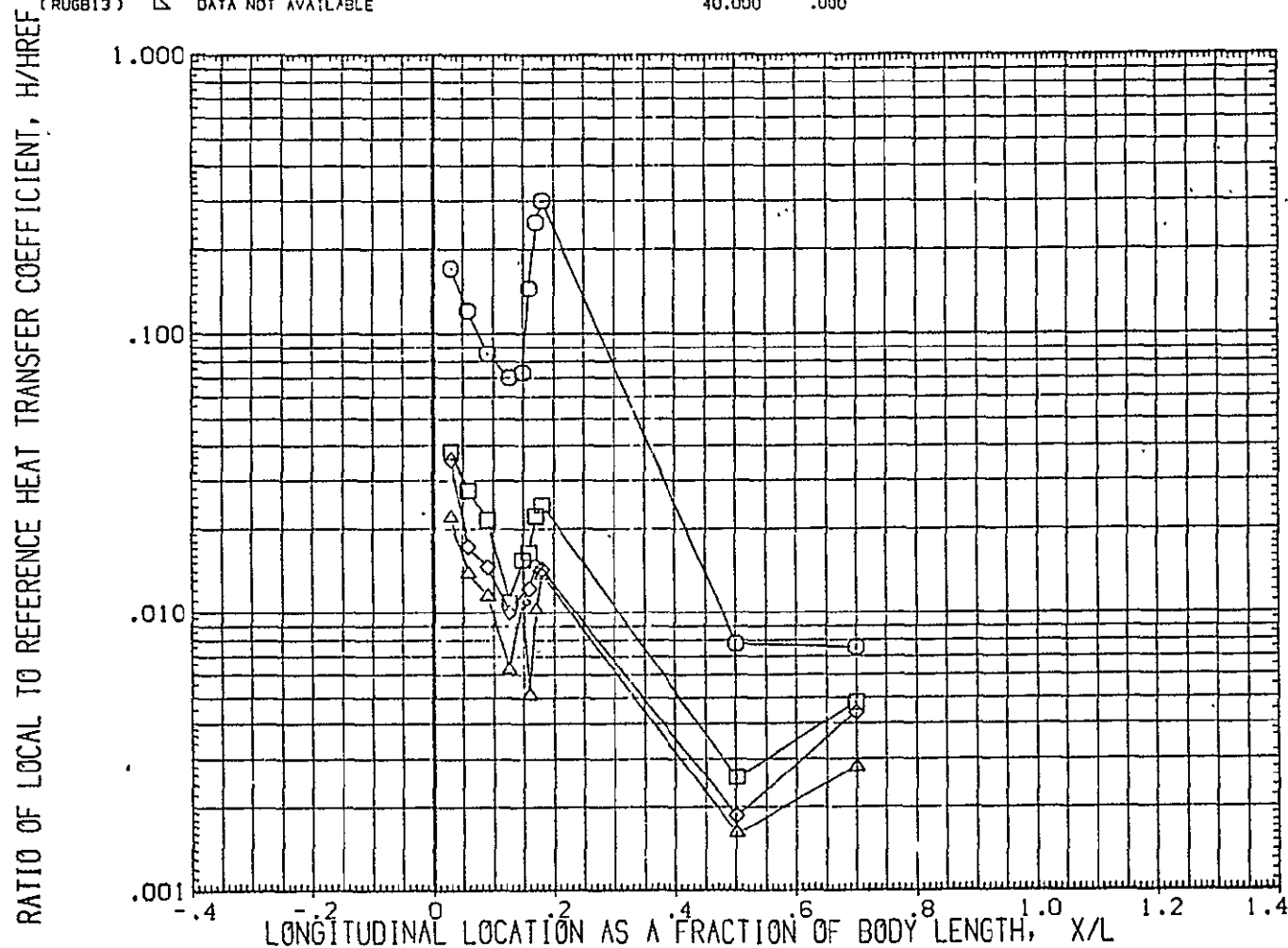


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT= 1.000 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	CH12/1H21 (CAL HST 173-100) 37 0 FUSEL AGE	.000	.000
(RUGB10)	CH12/1H21 (CAL HST 173-100) 37 0 FUSEL AGE	25.000	.000
(RUGB11)	CH12/1H21 (CAL HST 173-100) 37 0 FUSEL AGE	30.000	.000
(RUGB12)	CH12/1H21 (CAL HST 173-100) 37 0 FUSEL AGE	35.000	.000
(RUGB13)	CH12/1H21 (CAL HST 173-100) 37 0 FUSEL AGE	40.000	.000
	DATA NOT AVAILABLE		

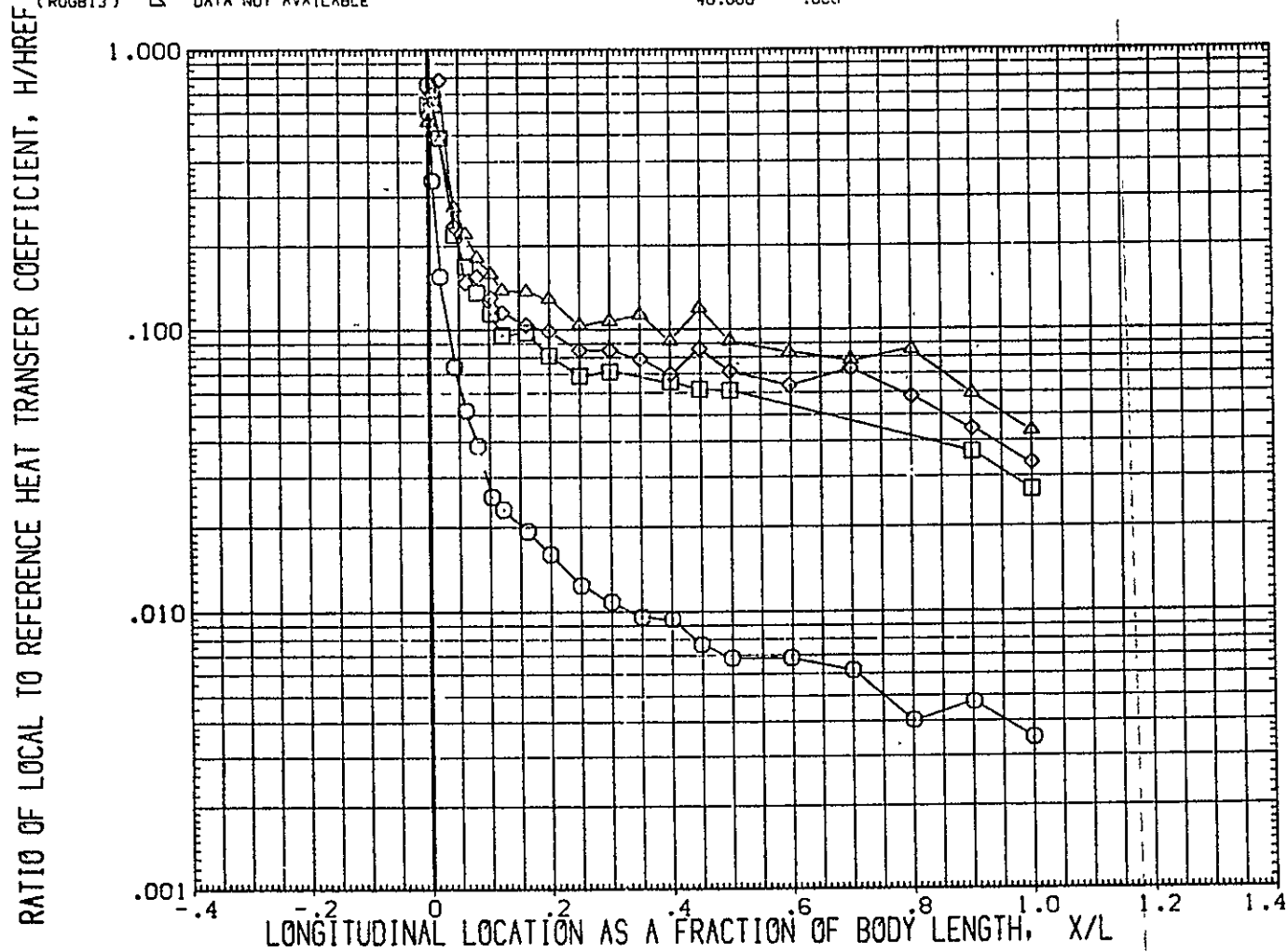


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT= .850 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
(RUGB10)	DATA NOT AVAILABLE	25.000	.000
(RUGB11)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB12)	OH12/1H21 (CAL 45° 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

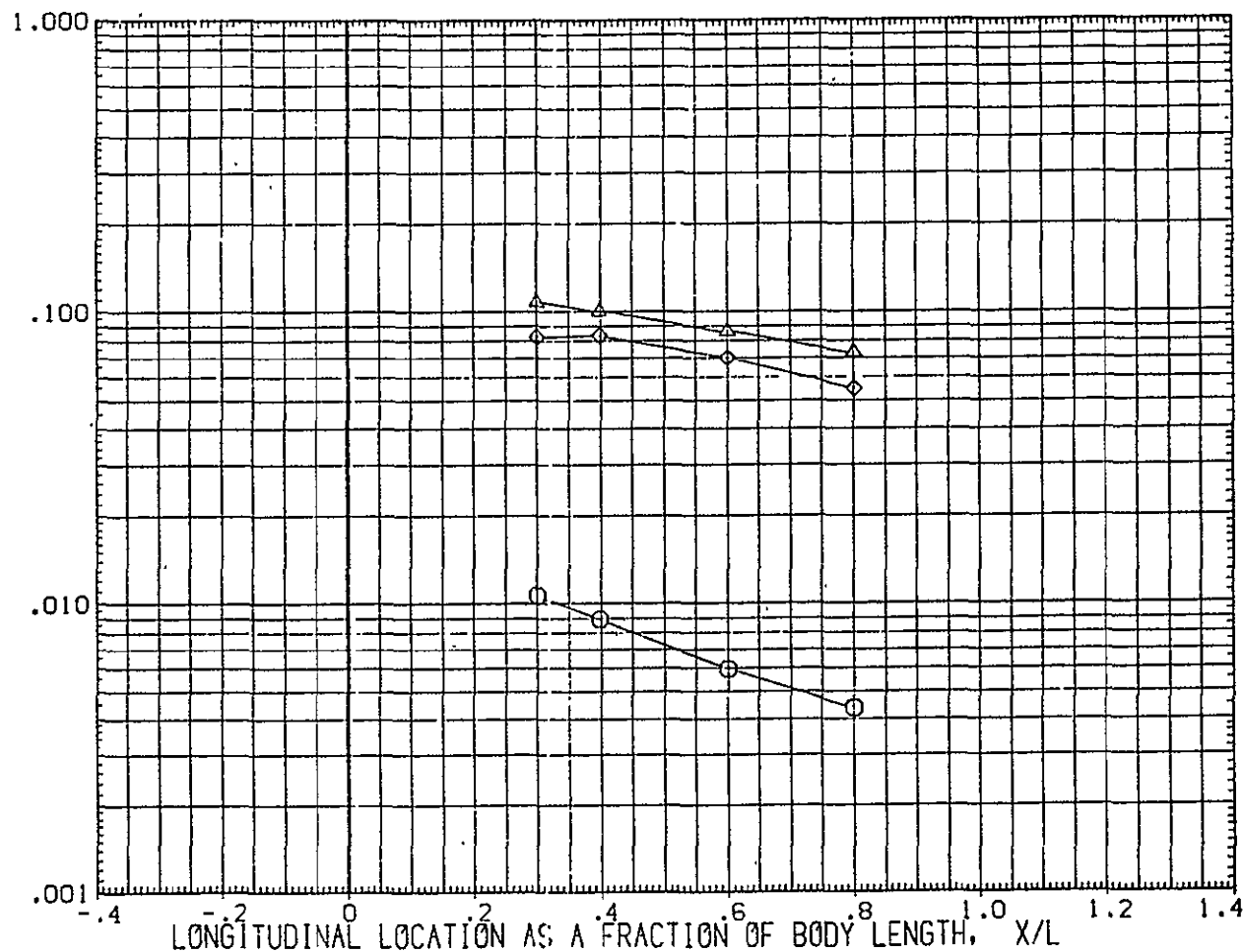


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = .850 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	25.000
(RUGB11)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	30.000
(RUGB12)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	35.000
(RUGB13)	DATA NOT AVAILABLE	FUSELAGE	40.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

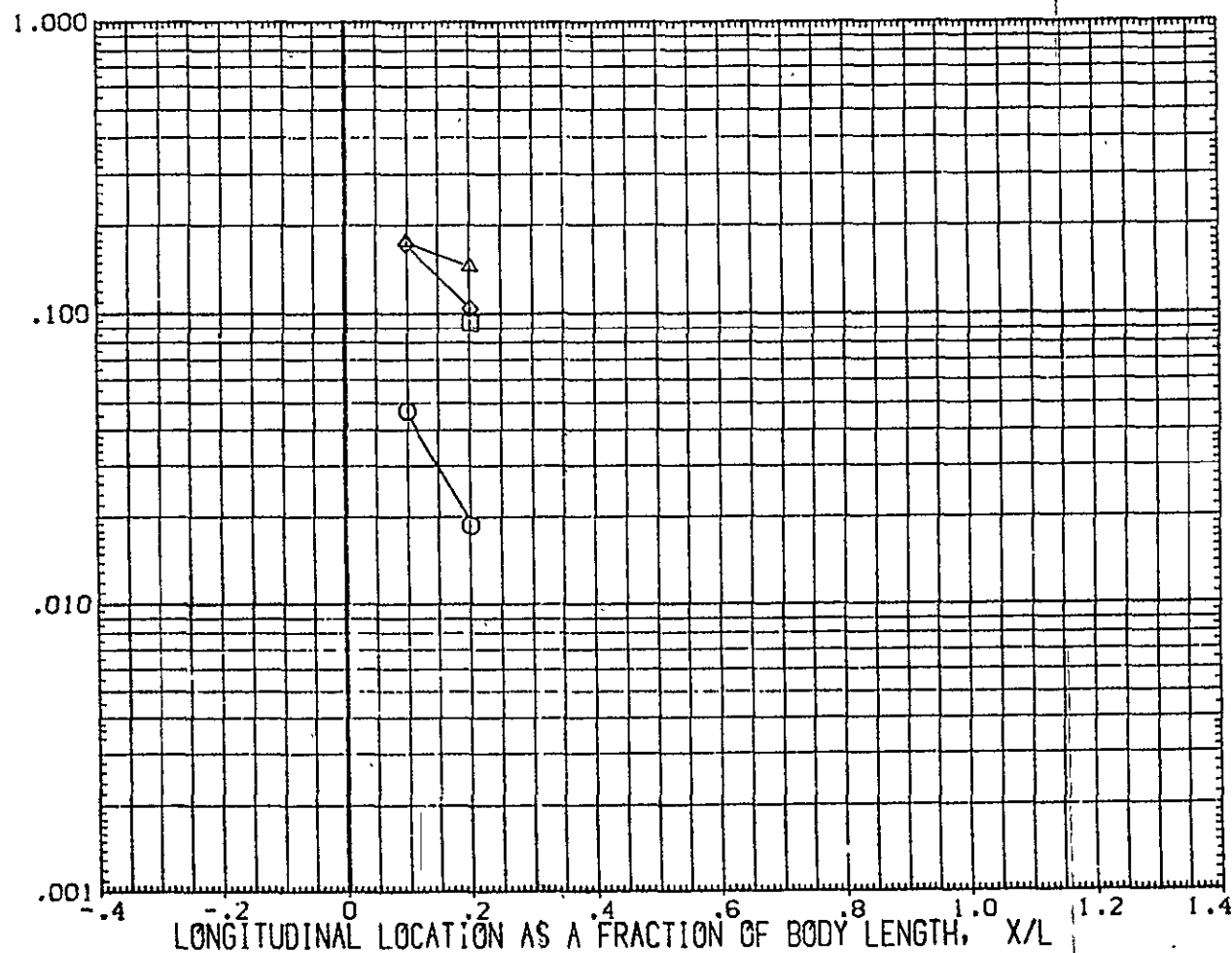


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = .850 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	QH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .000	.000
(RUGB10)	QH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUGB11)	QH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 30.000	.000
(RUGB12)	QH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000
(RUGB13)	DATA NOT AVAILABLE	FUSELAGE 40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

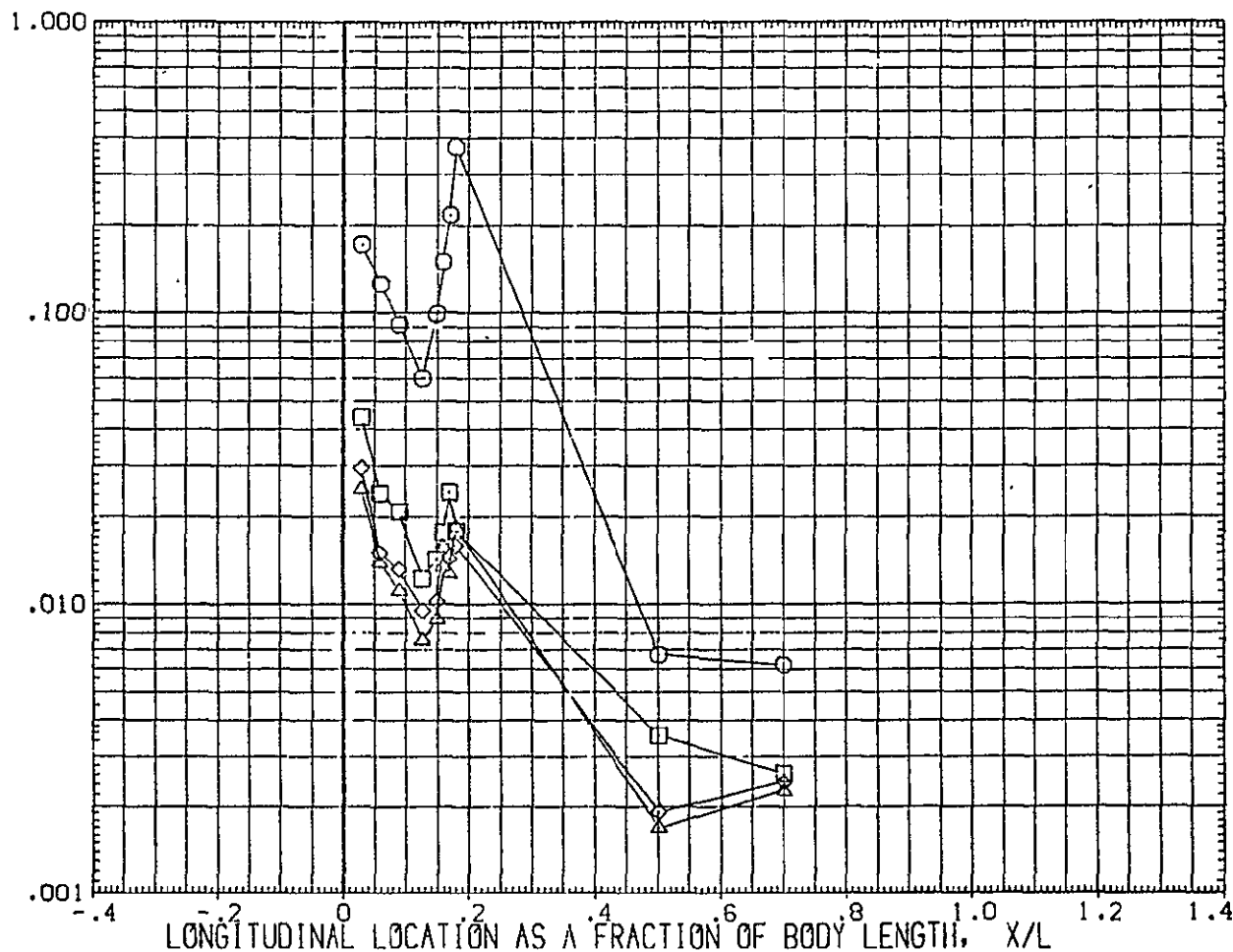


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = .850 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000 .000
(RUGB10)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	25.000 .000
(RUGB11)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	30.000 .000
(RUGB12)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	35.000 .000
(RUGB13)	DATA NOT AVAILABLE	40.000 .000	

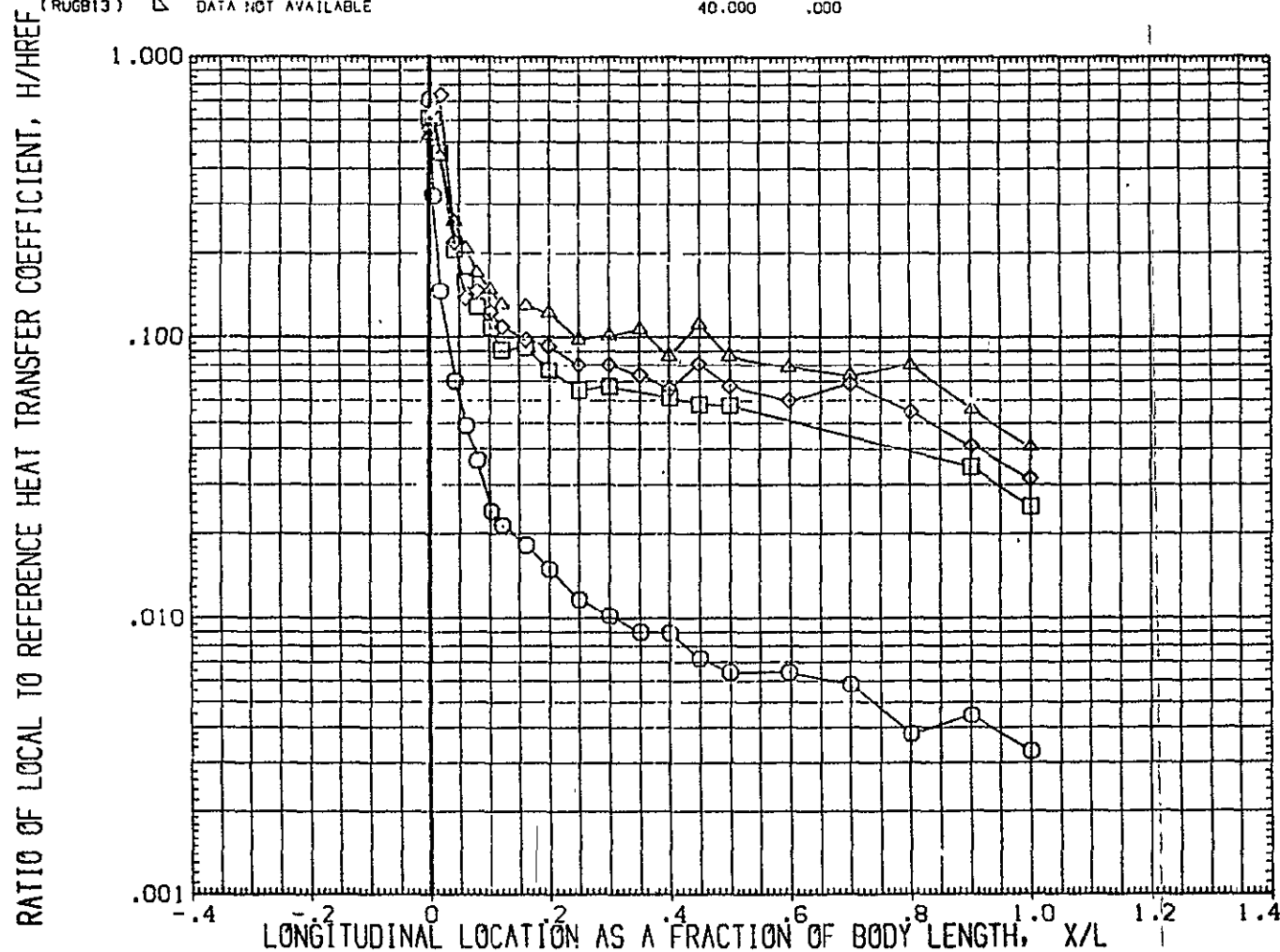


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L1

MACH = 19.170 HAW/HT = .900 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG807)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	.000
(PJGB10)	DATA NOT AVAILABLE		.000
(RUG811)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	25.000
(RUG812)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	30.000
(RUG813)	DATA NOT AVAILABLE		.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

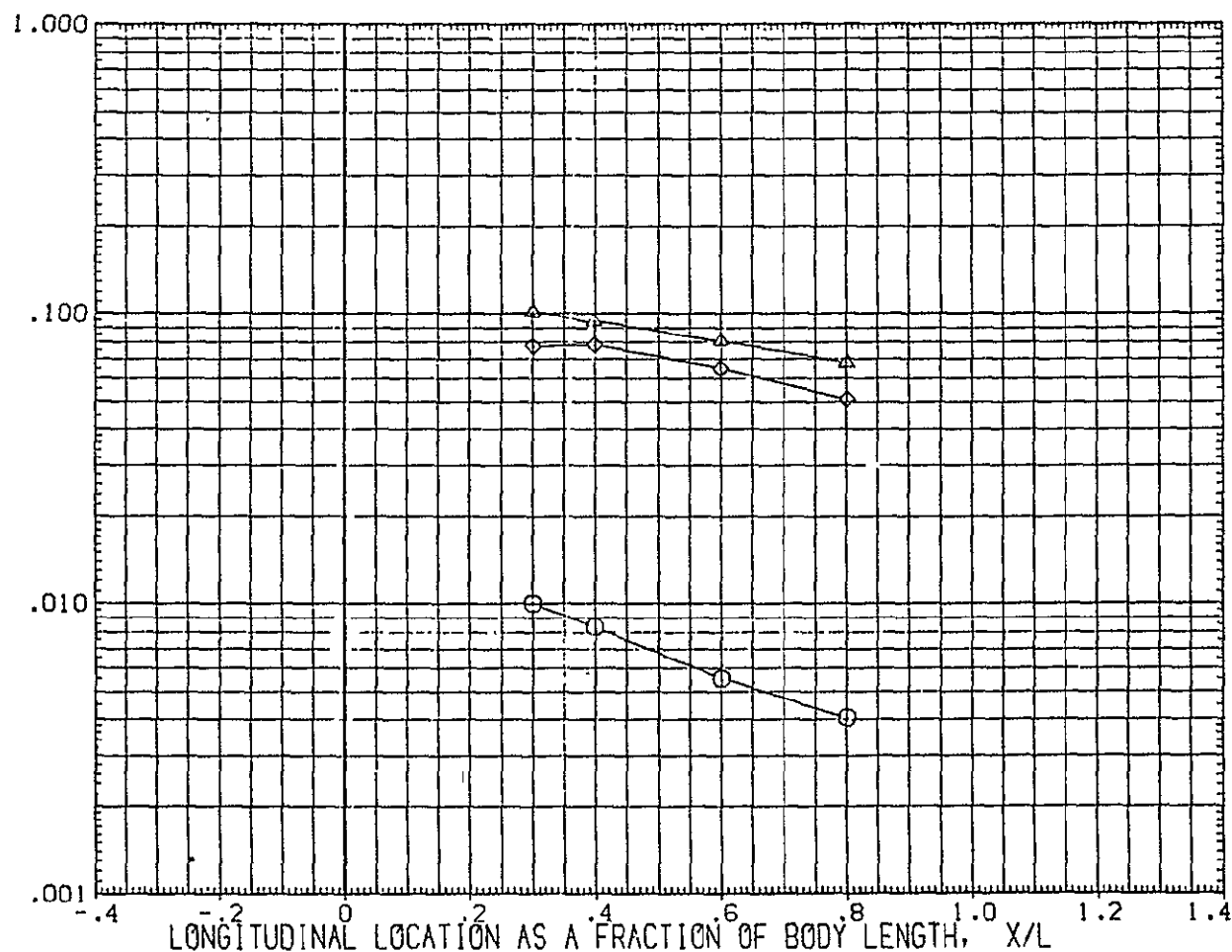


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT= .900 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
(RUGB10)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB11)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB12)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

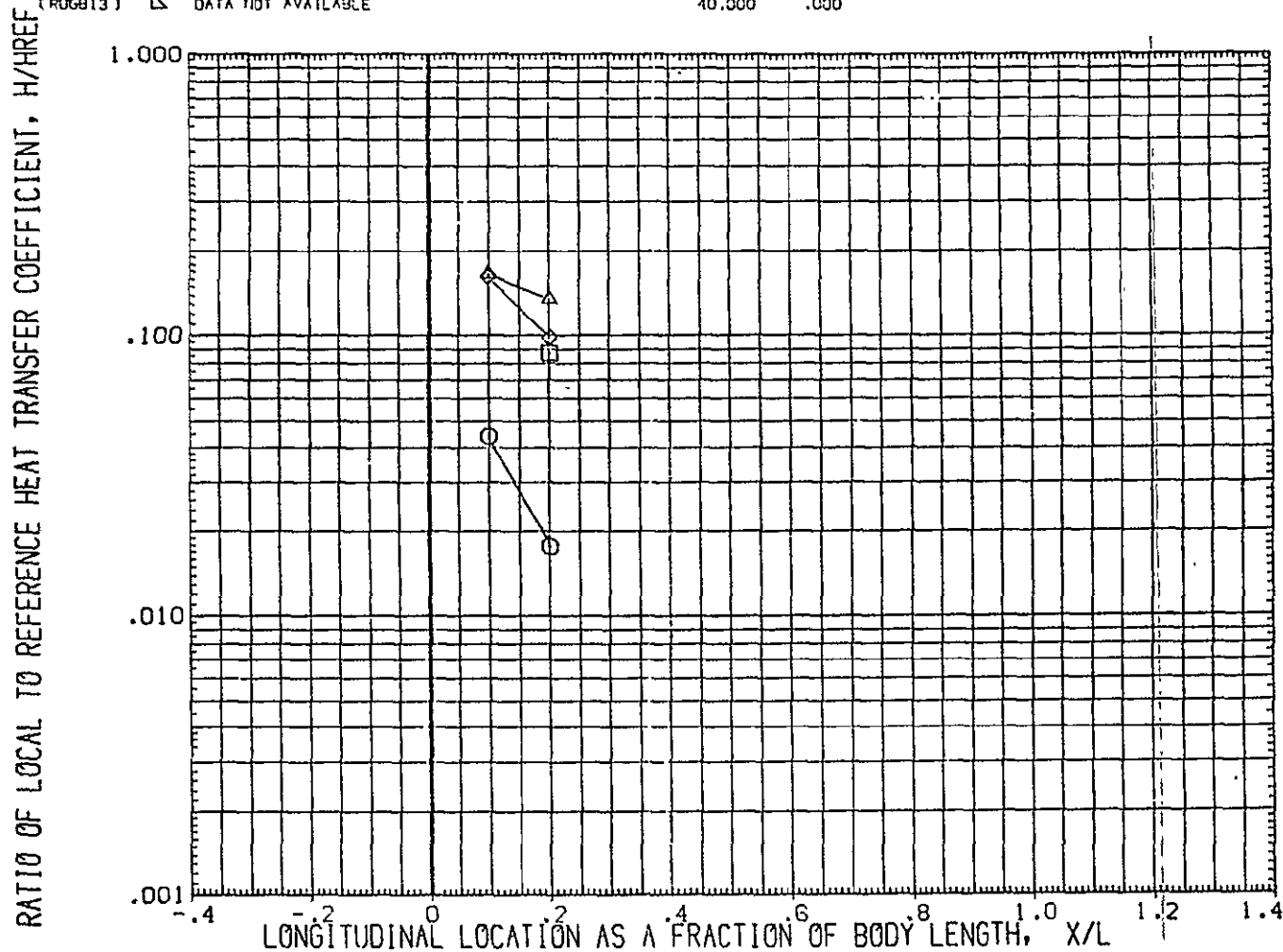


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L1

MACH = 19.170 HAW/HT= .900 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
RUG907	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.000
RUG910	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	25.000
RUG911	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	30.000
RUG912	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	35.000
RUG913	DATA NOT AVAILABLE	FUSELAGE	40.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

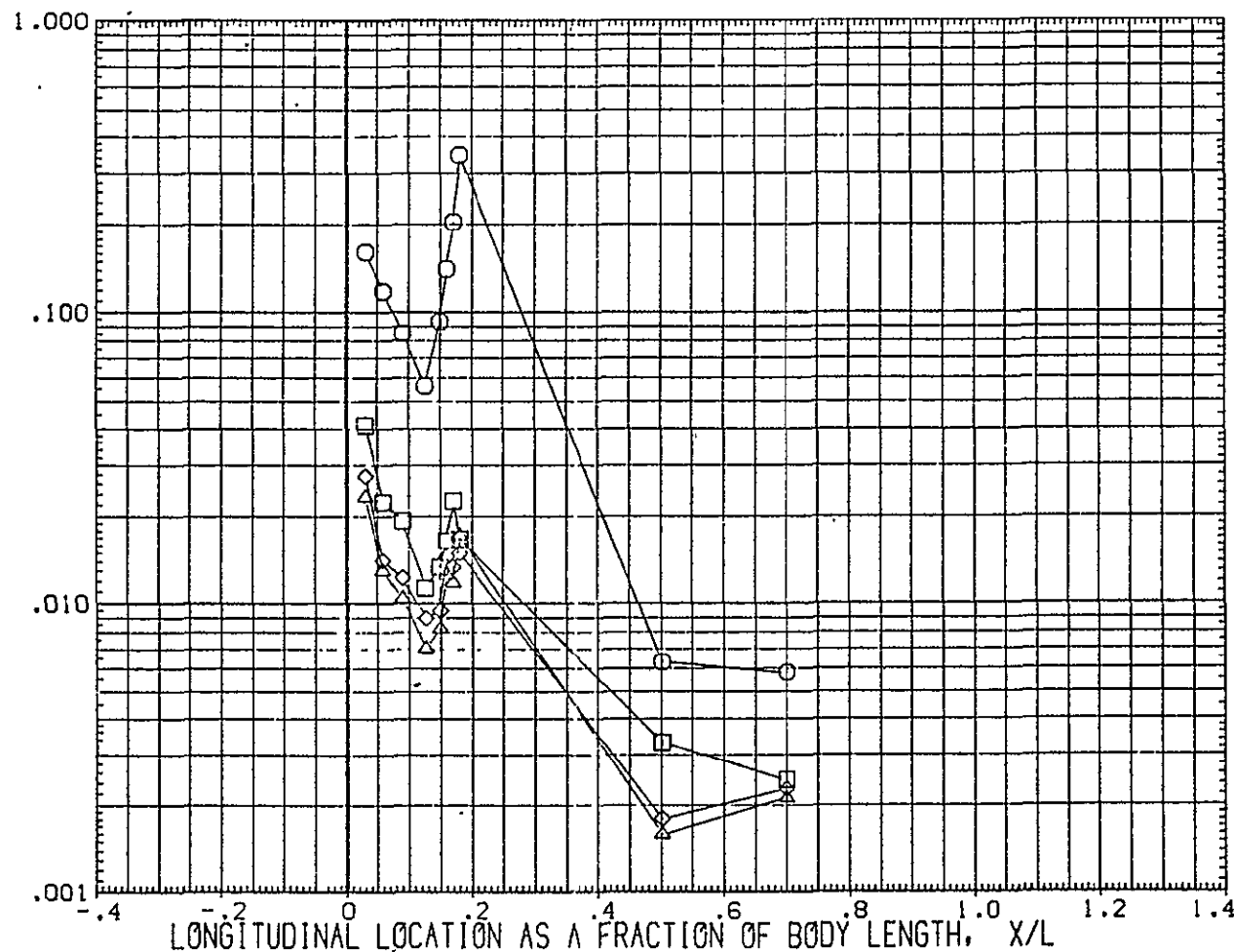


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = .900 PHI = 180.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	○	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .600	.000
(RUGB10)	□	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUGB11)	△	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 30.000	.000
(RUGB12)	◇	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000
(RUGB13)	×	DATA NOT AVAILABLE	FUSELAGE 40.000	.000

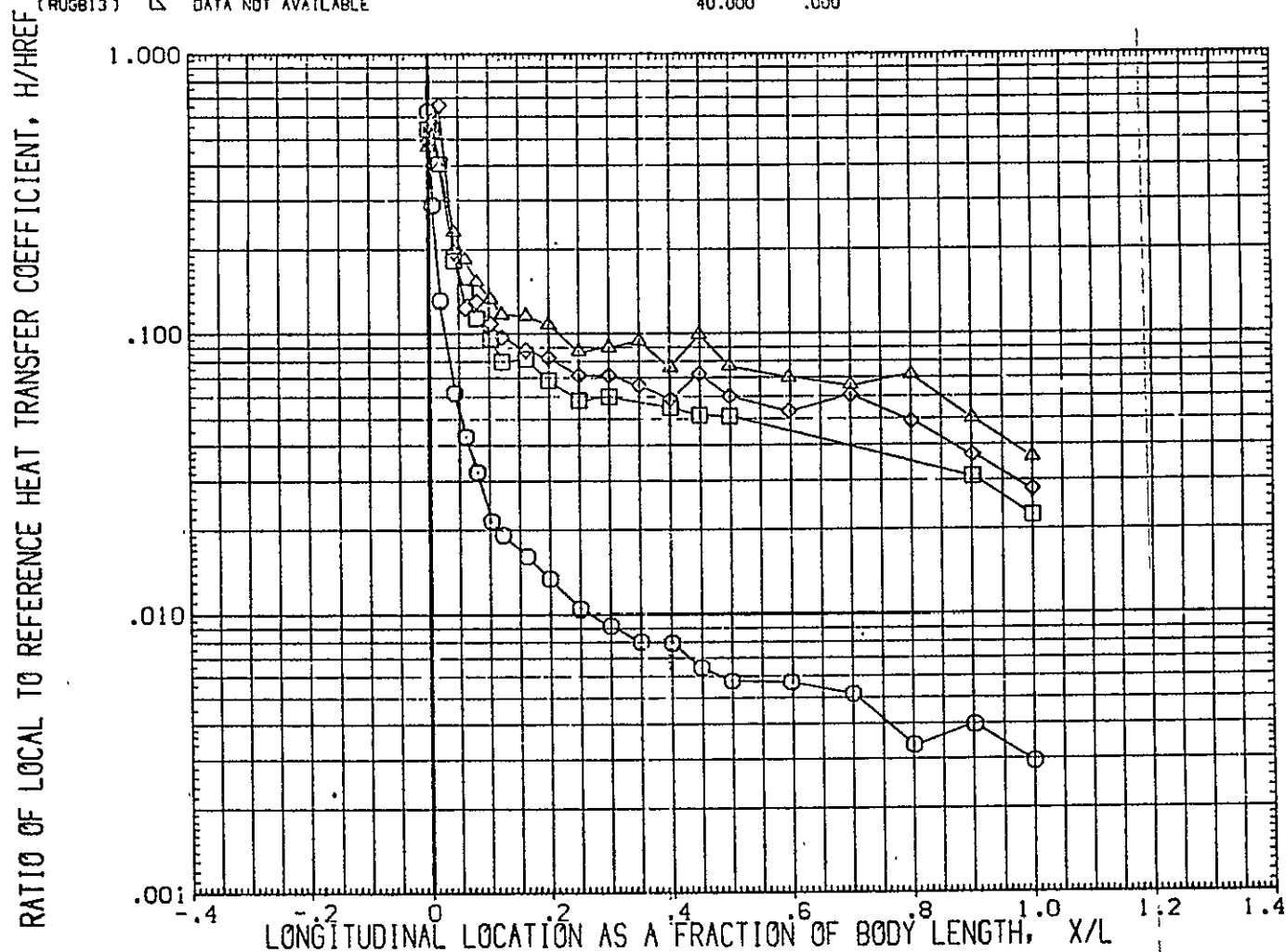


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L1
MACH = 19.170 HAW/HT= 1.000 PHI = .000 PAGE 600

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB07)	OH12/IH21 (CAL HST 173-100) 37 0 FUSELAGE	.000	.000
(RUGB10)	DATA NOT AVAILABLE	25.000	.000
(RUGB11)	OH12/IH21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB12)	OH12/IH21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
(RUGB13)	DATA NOT AVAILABLE	40.000	.000

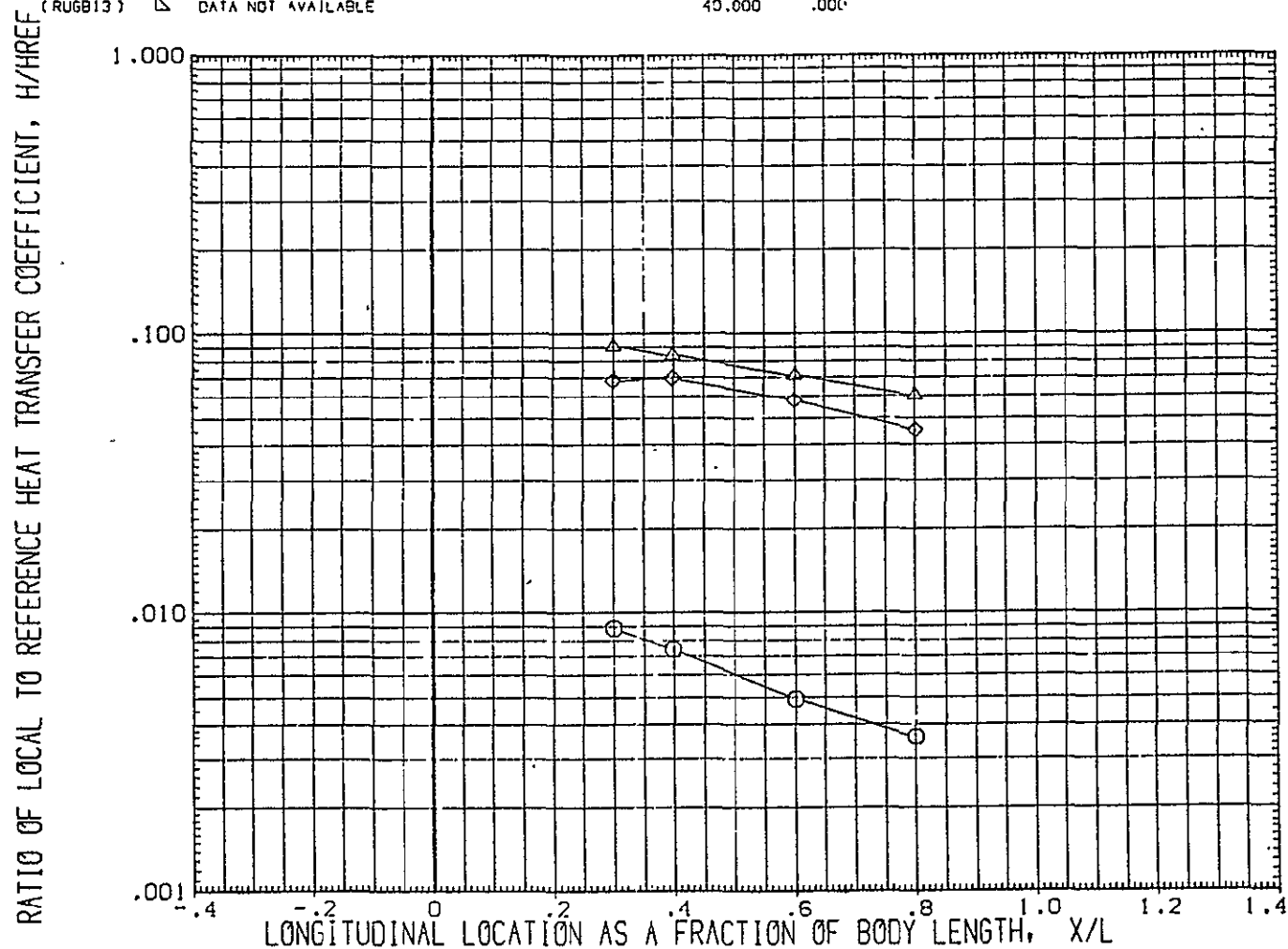


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 19.170 HAW/HT = 1.000 PHI = 25.000 PAGE 601

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
[RUGB07]	CH12/TH21 (CAL HST 172-100) 37 0 FUSELAGE	.000	.000
[RUGB10]	CH12/TH21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
[RUGB11]	CH12/TH21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
[RUGB12]	CH12/TH21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000
[RUGB13]	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

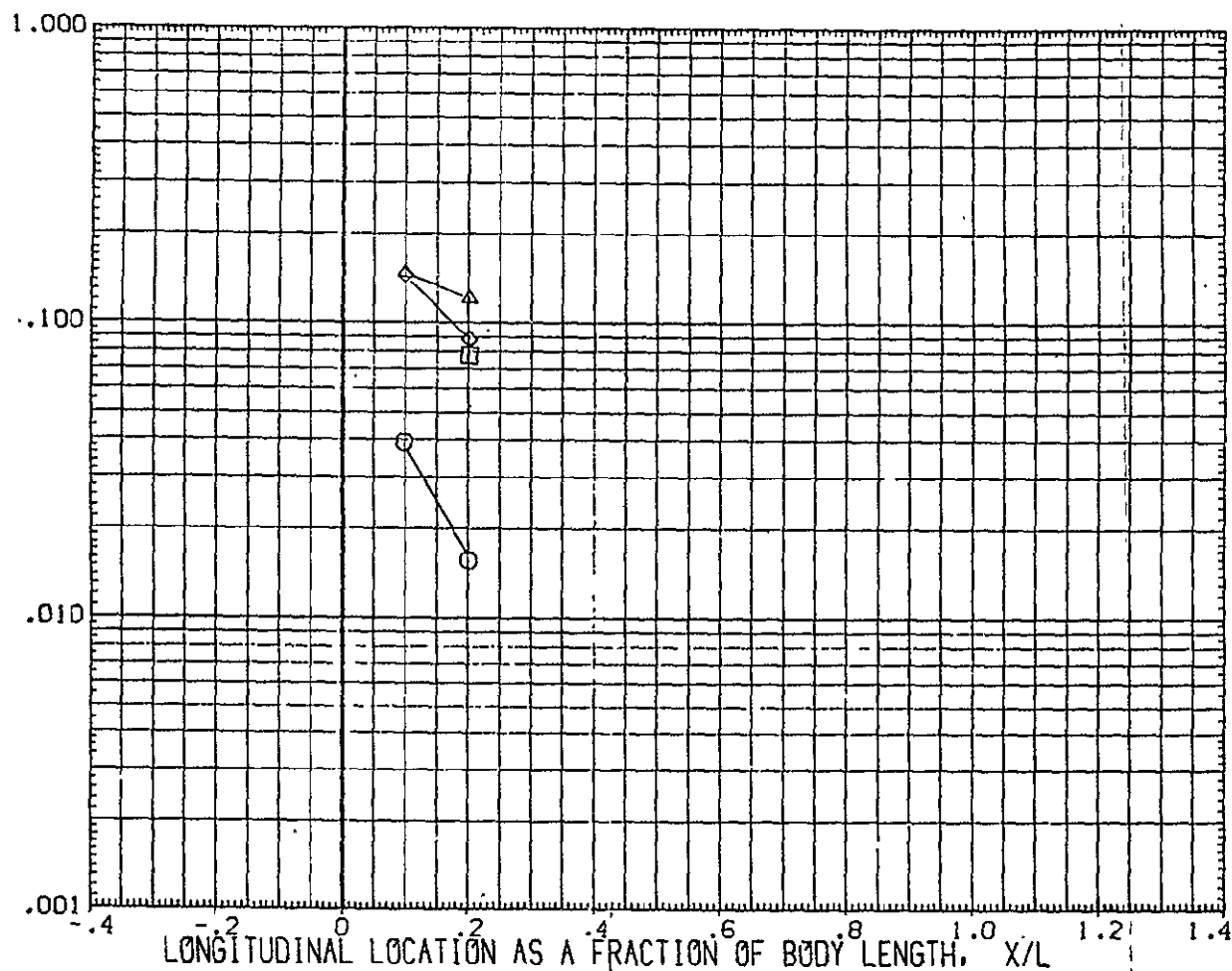


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = 1.000 PHI = 30.000

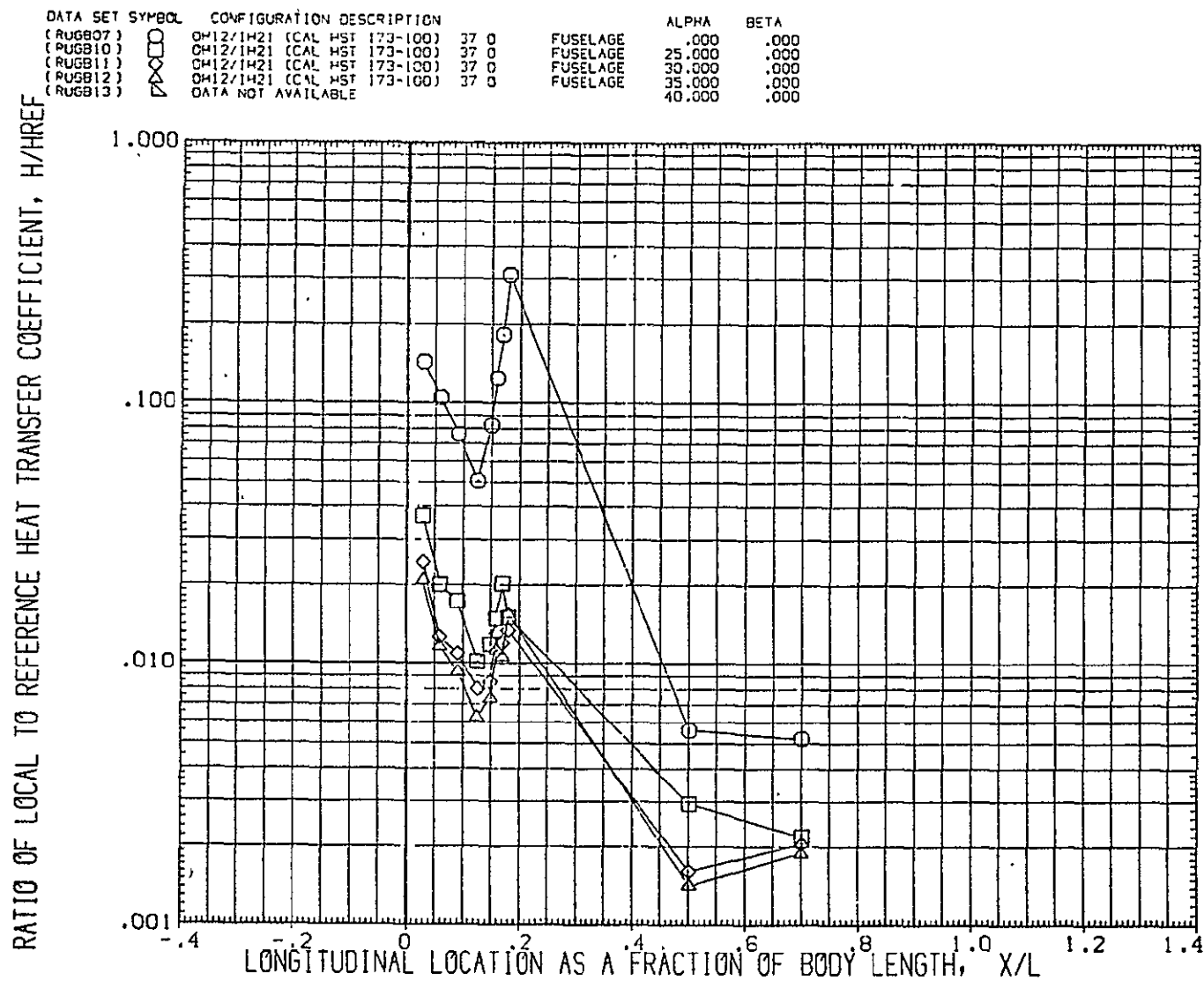


FIG. 21 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L1$
MACH = 19.170 HAW/HT= 1.000 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

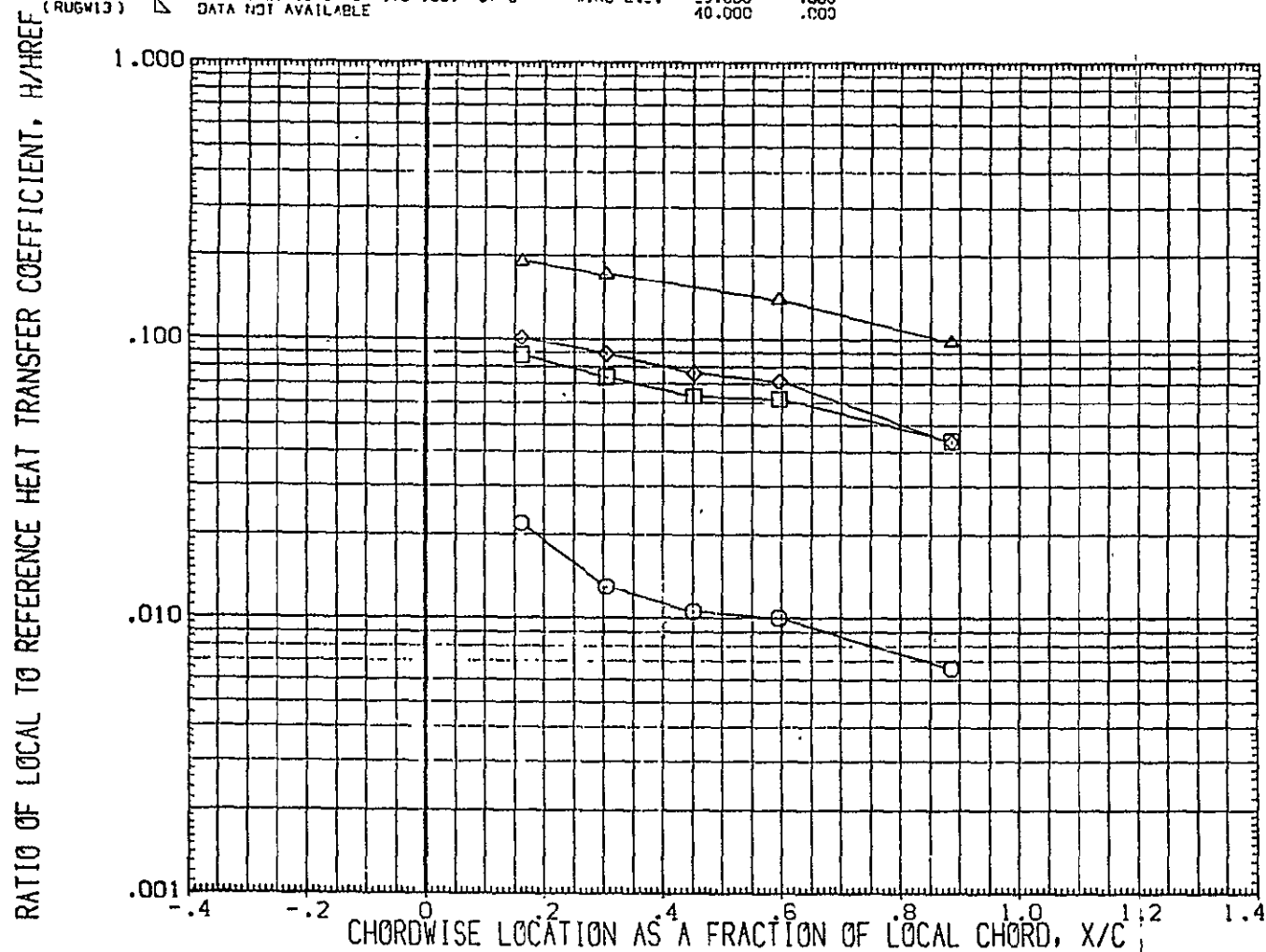


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 7.000 HAW/HT = .850 $2Y/B$ = .250

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

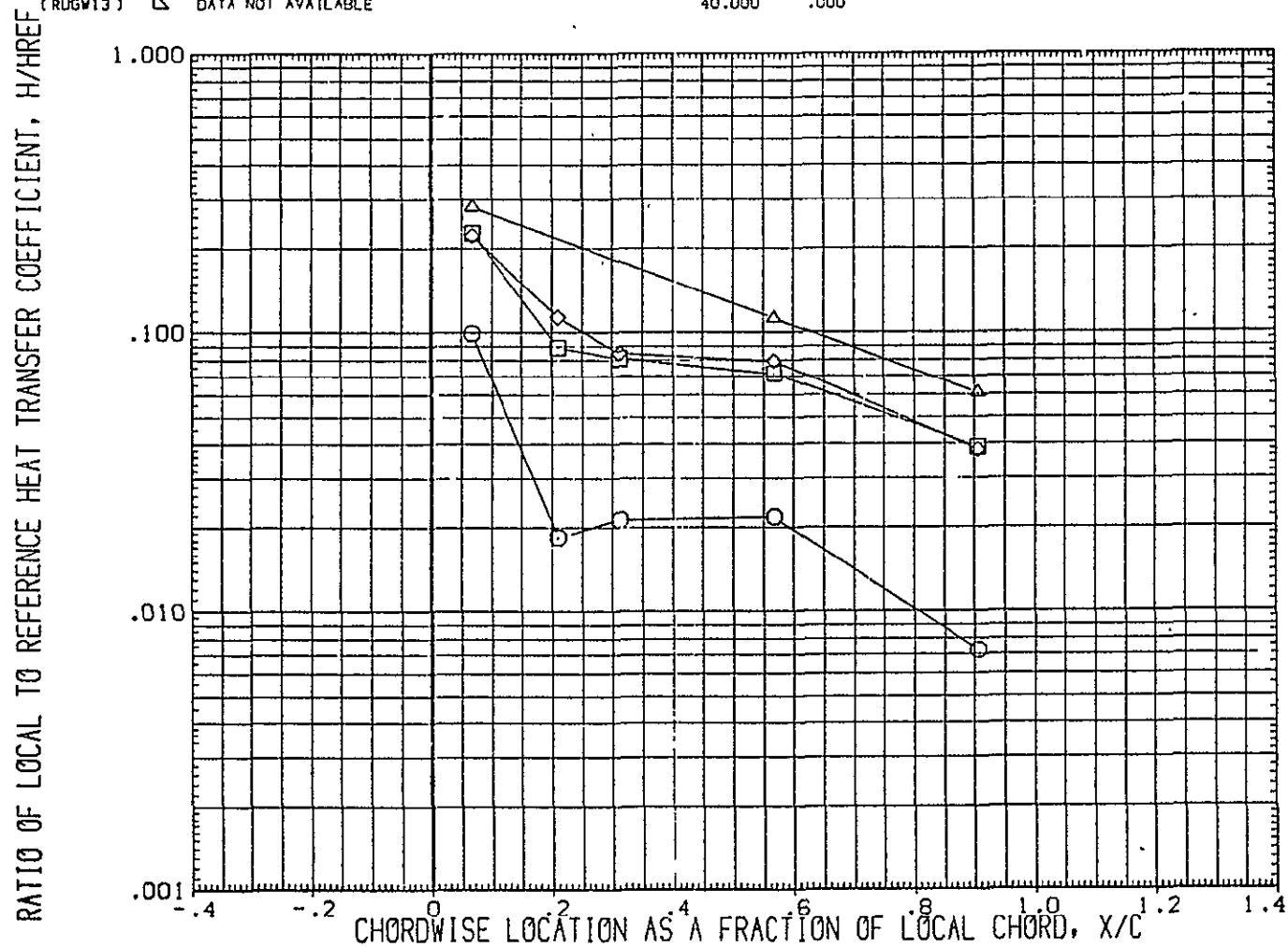


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 7.000 HAW/HT = .850 $2Y/B$ = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OP12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	OP12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OP12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OP12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

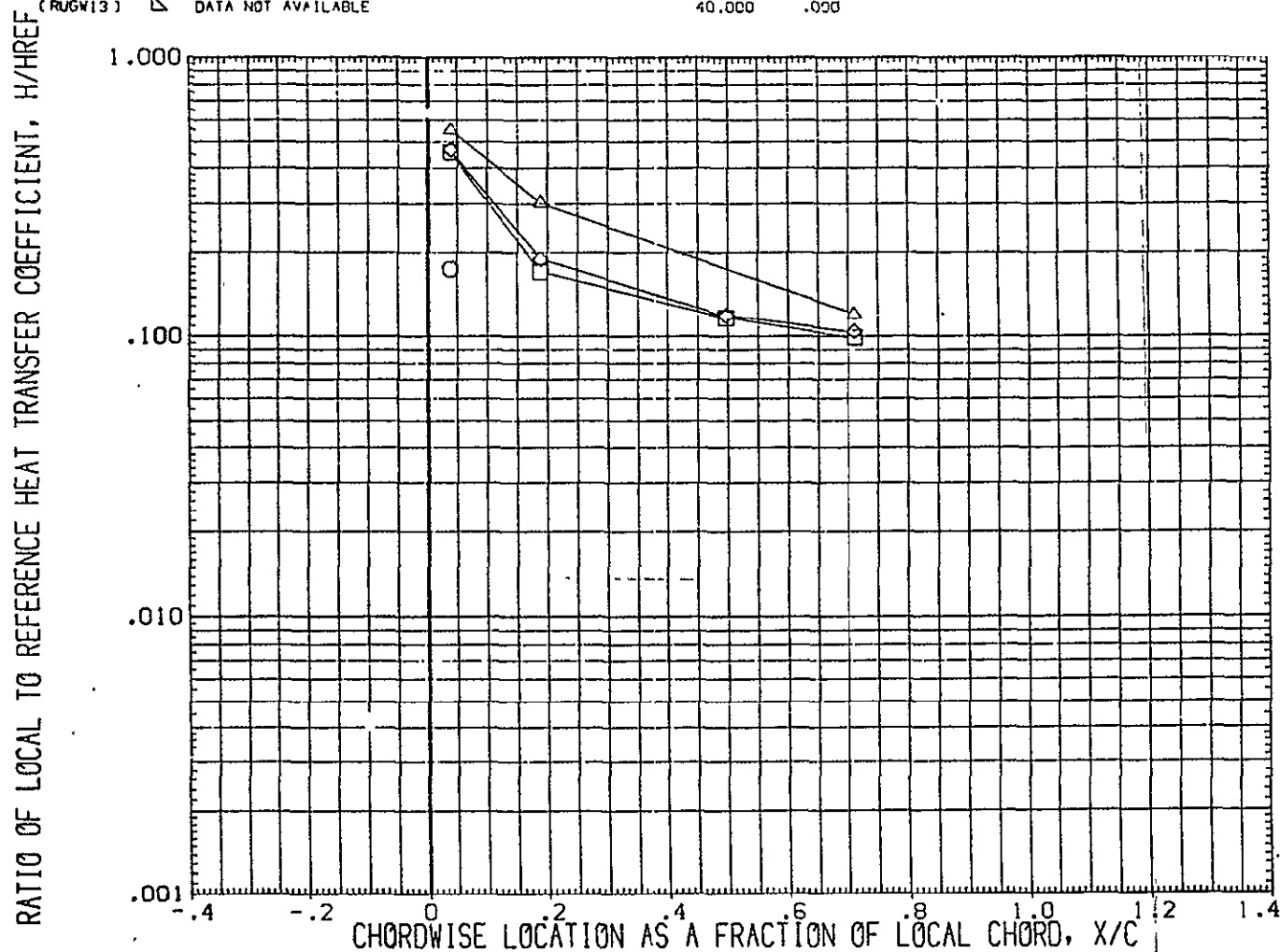


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER | RN/L1

MACH = .7.000 HAW/HT= .850 2Y/B = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

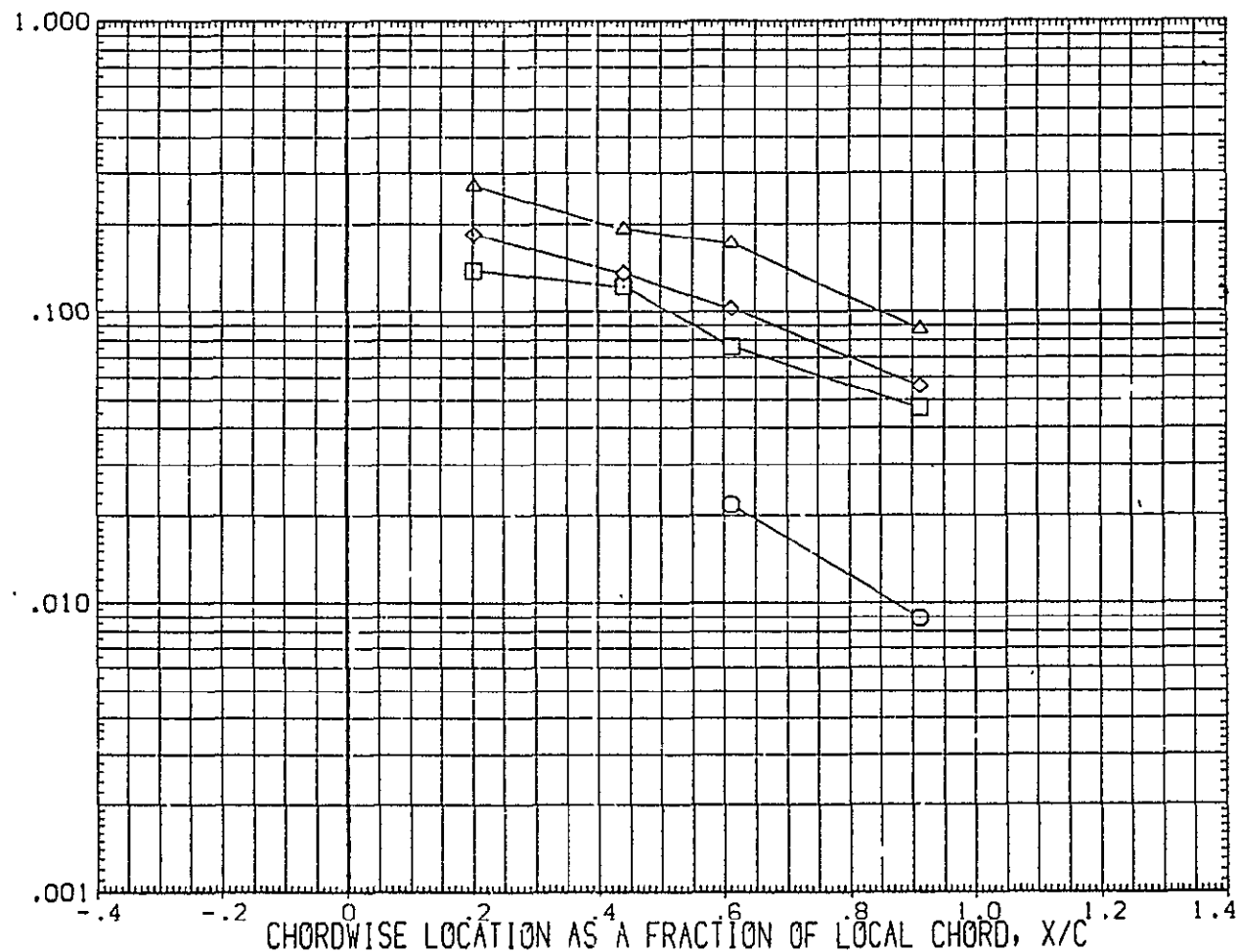


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 7.000 HAW/HT = .850 $2Y/B$ = .600 PAGE 607

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

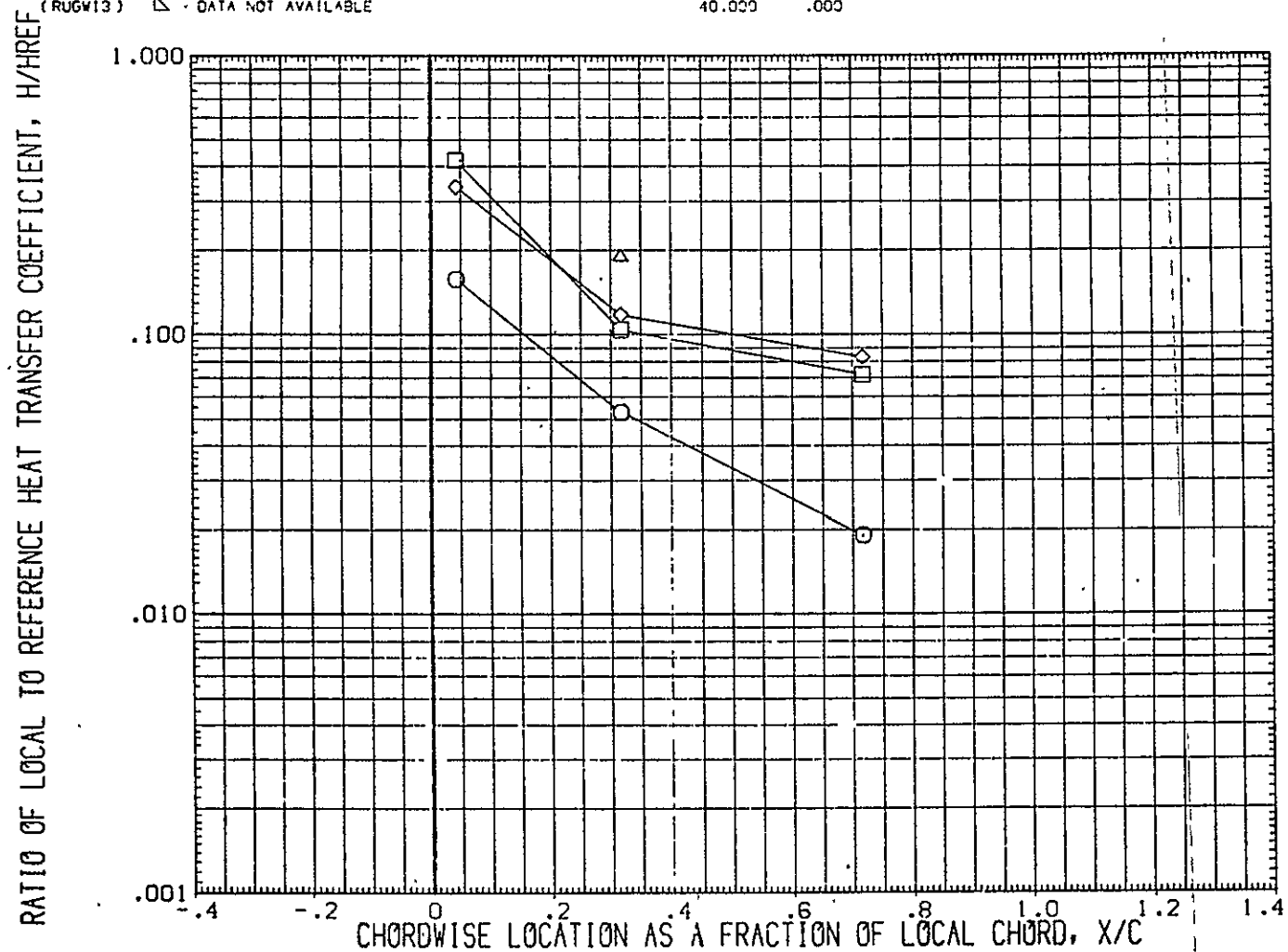


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$.

MACH = 7.000 HAW/HT = .850 $2Y/B$ = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OW12/H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	OW12/H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OW12/H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OW12/H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

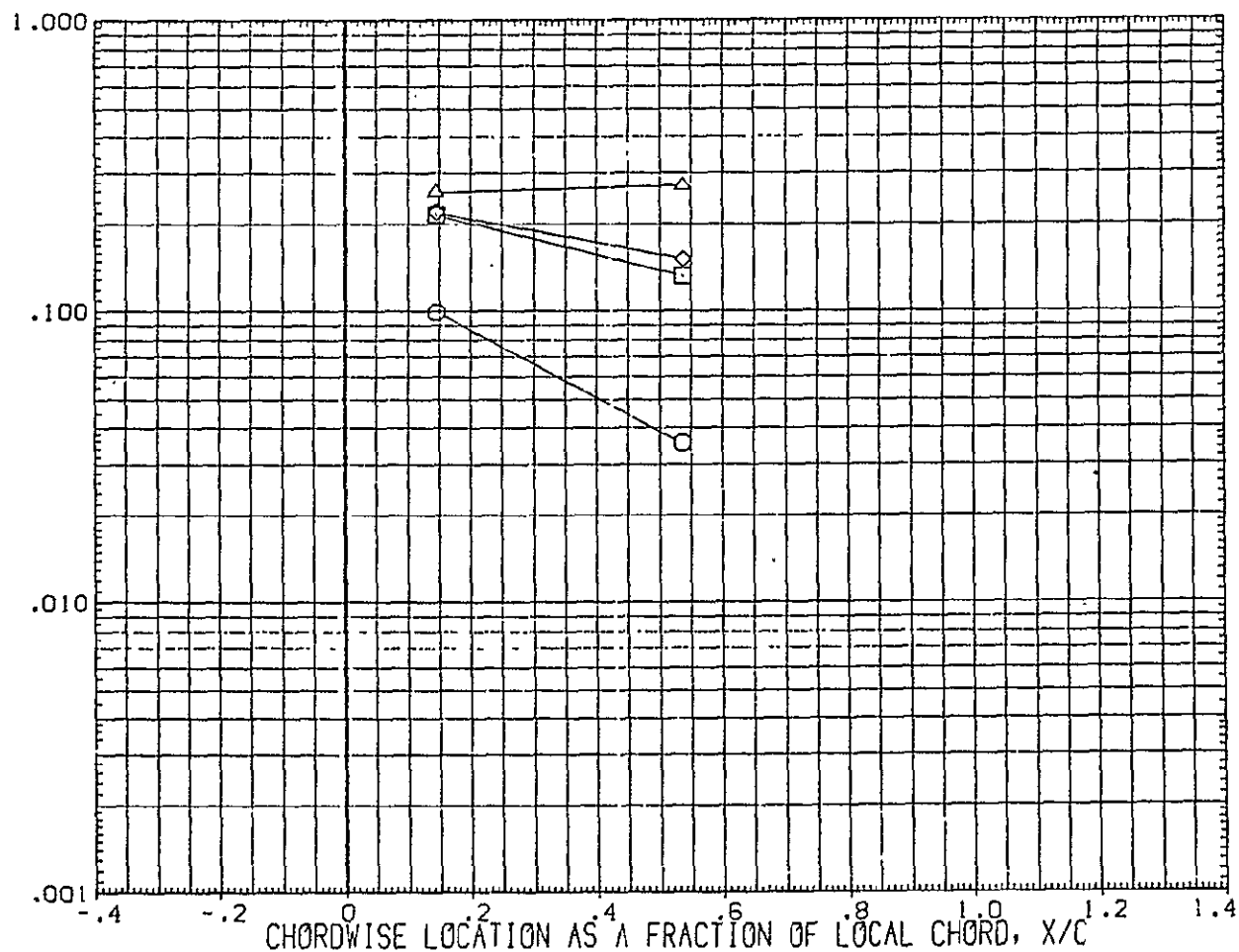


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.000 HAW/HT = .850 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	0412/1421 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW10)	0412/1421 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW11)	0412/1421 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW12)	0412/1421 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW13)	DATA NOT AVAILABLE	10.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

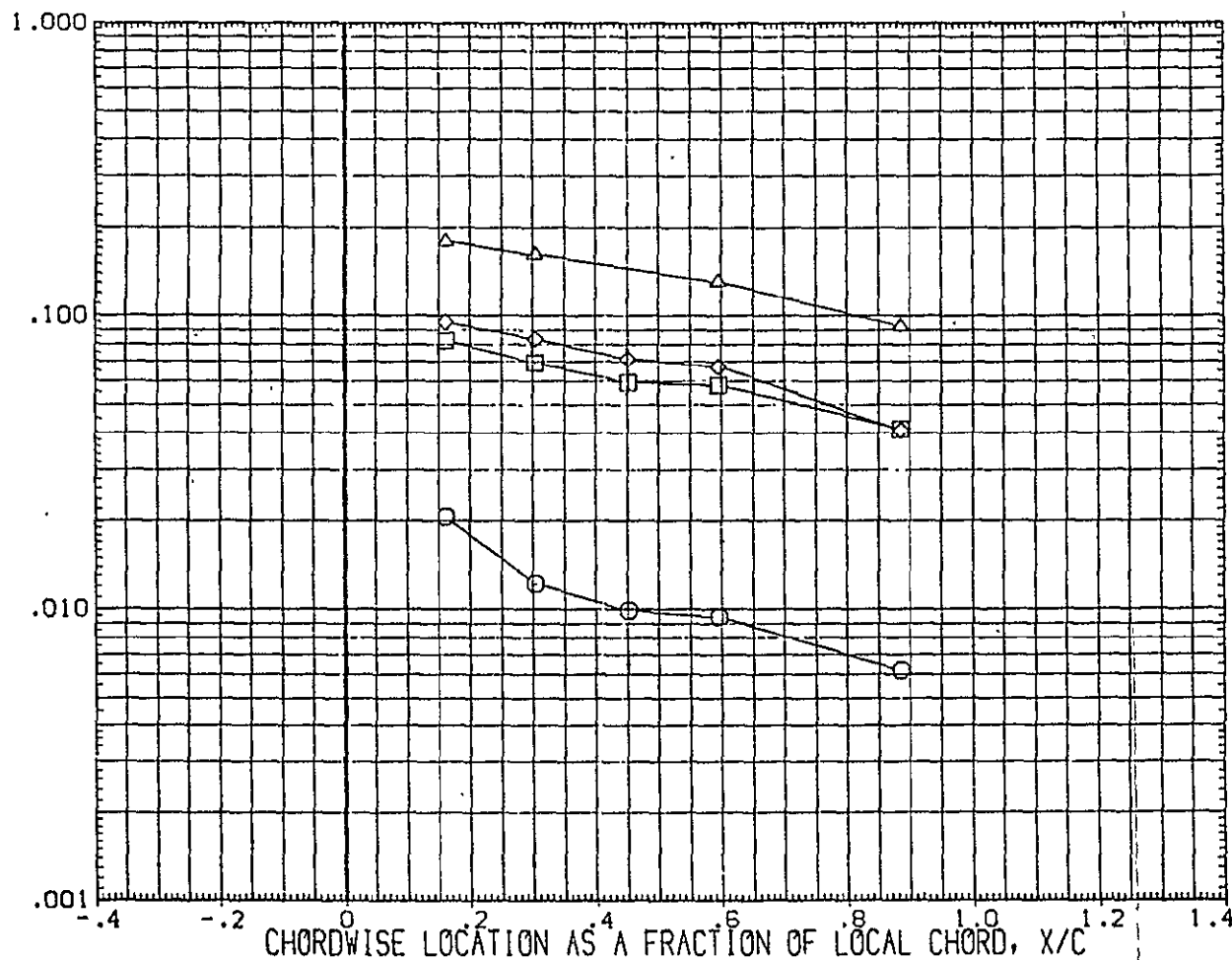


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/LI

MACH = 7.000 HAW/HT = .900 $2Y/B$ = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CH12/1H21 (CAL HST 173-103) 37 0 WING L.S.	.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-103) 37 0 WING L.S.	25.000	.000
(RUGW11)	CH12/1H21 (CAL HST 173-103) 37 0 WING L.S.	30.000	.000
(RUGW12)	CH12/1H21 (CAL HST 173-103) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

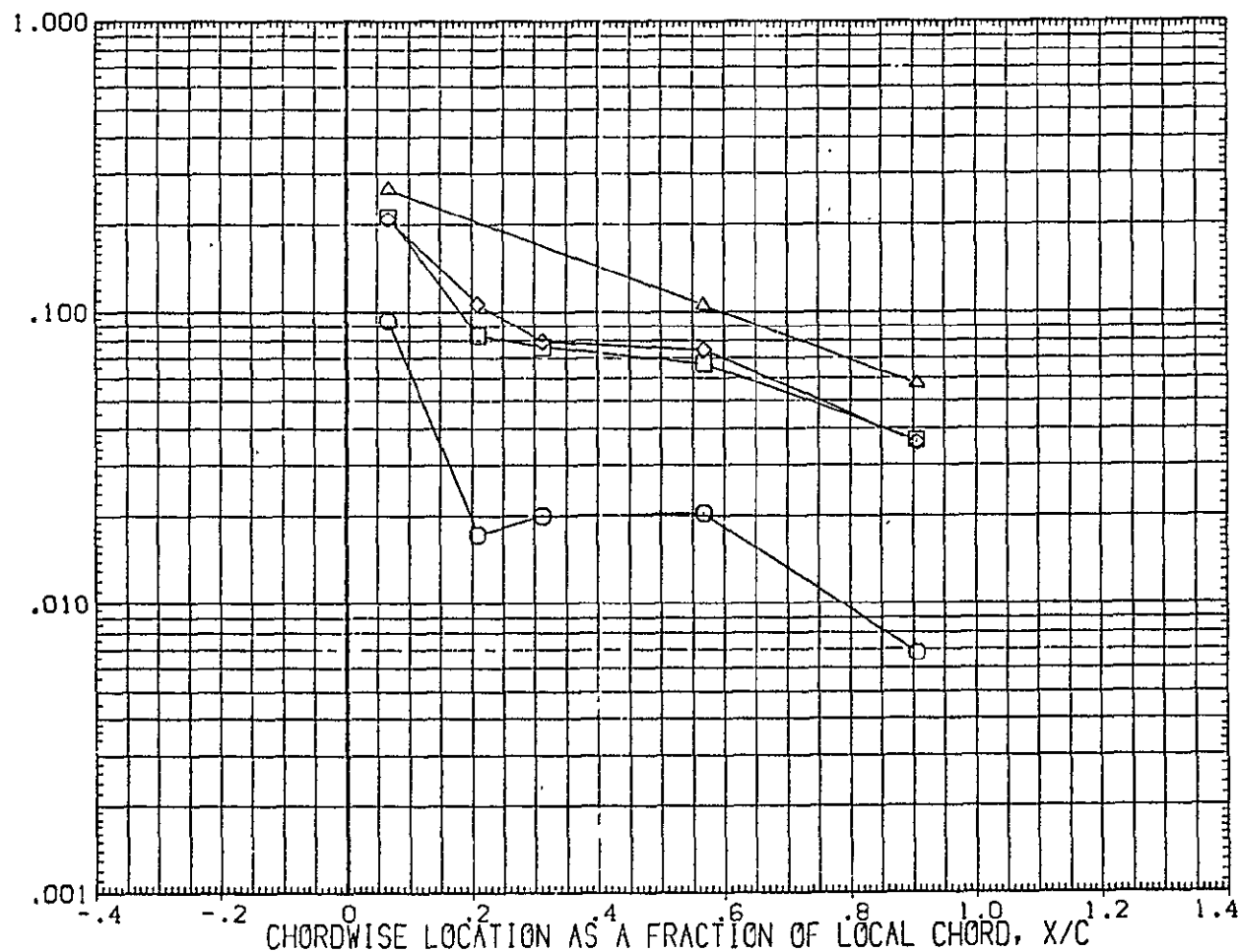


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 7.000 HAW/HT = .900 $2Y/B$ = .400 PAGE 611

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGV13)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000
	DATA NOT AVAILABLE		

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

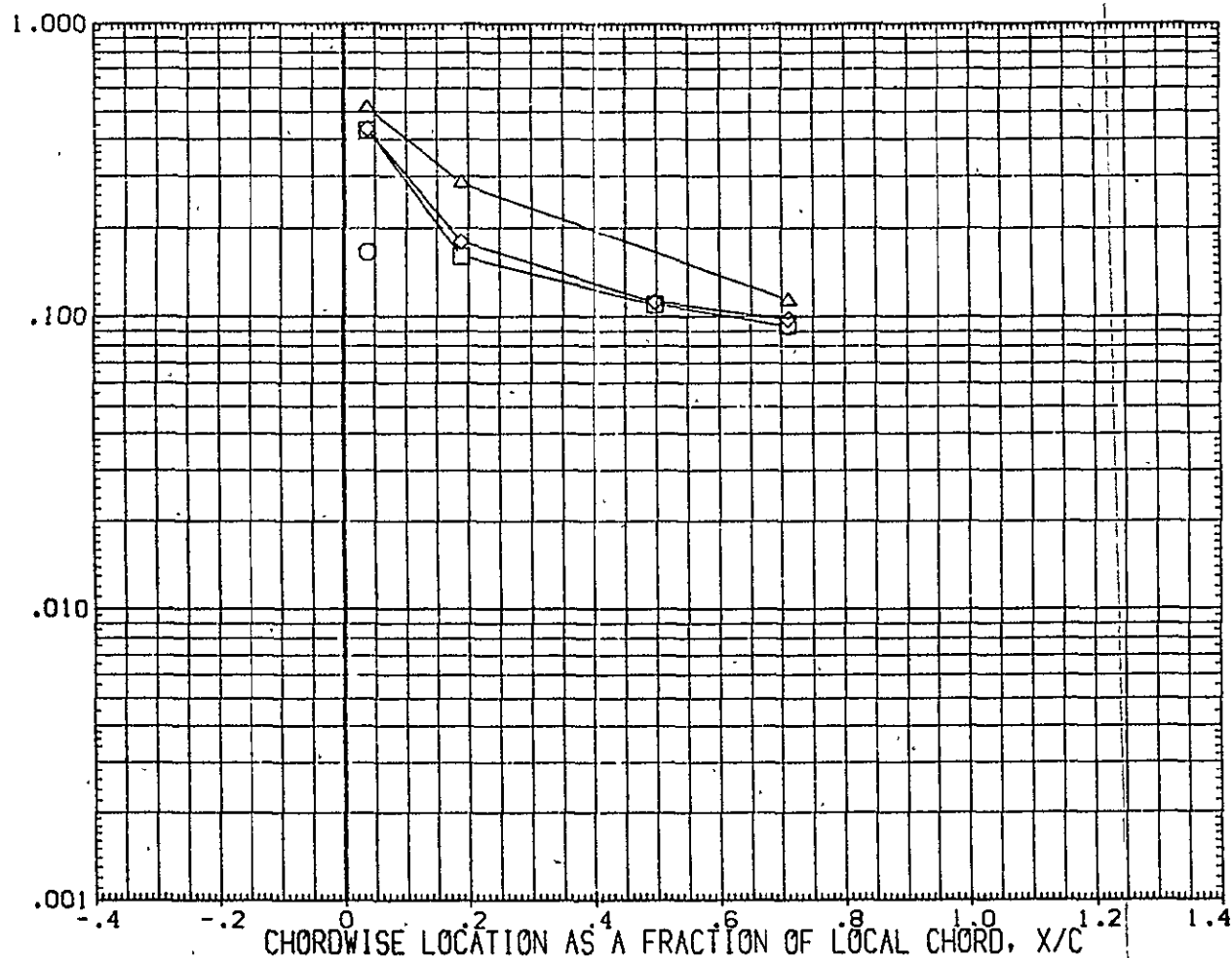


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.000 HAW/HT = .900 2Y/B = .500

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DATA SET SYMBOL	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	□	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW10)	◇	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW11)	△	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW12)	○	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000
(RUGW13)	△	DATA NOT AVAILABLE		

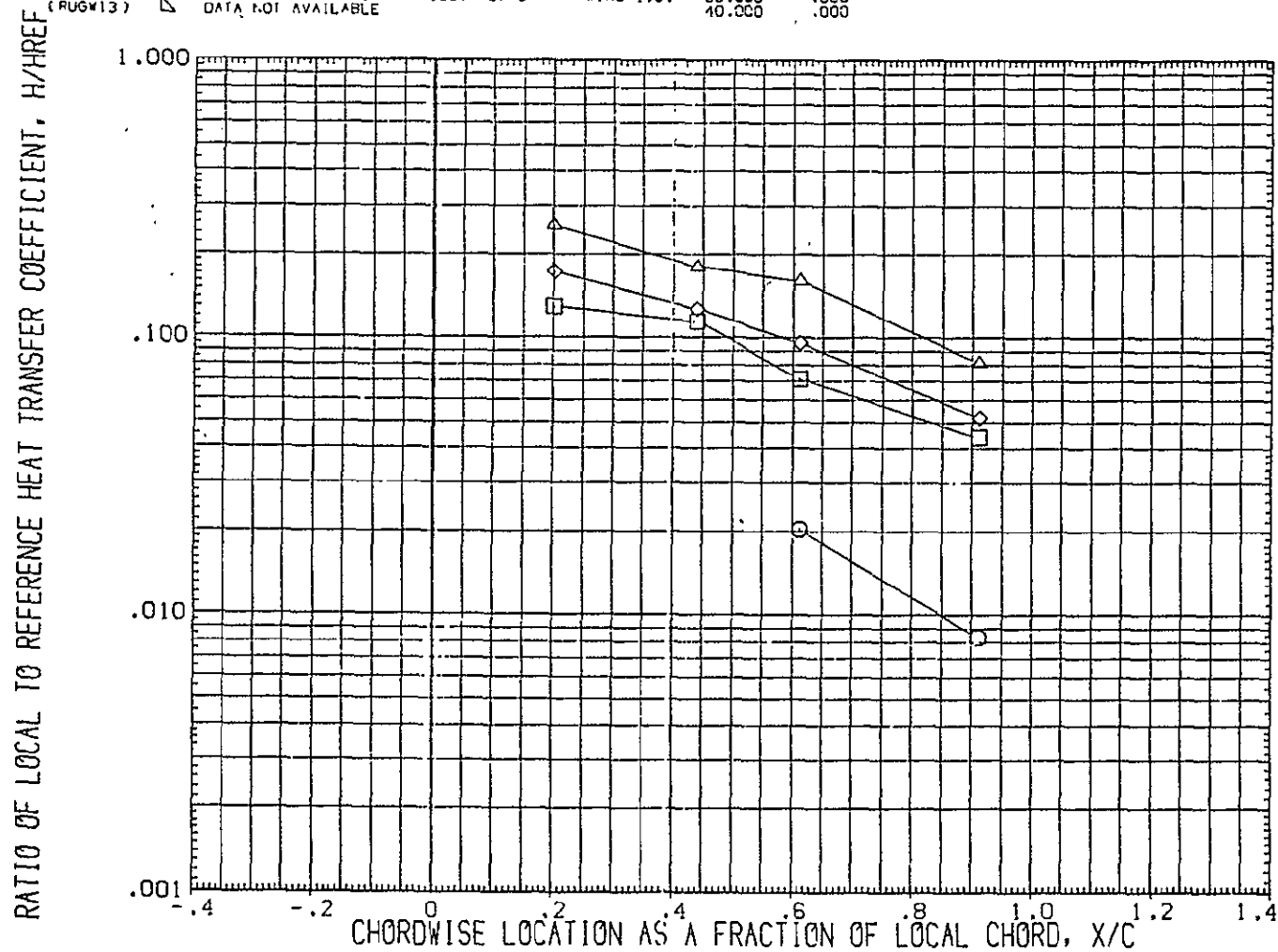


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 7.000 HAW/HT = .900 $2Y/B$ = .600

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 ° WING L.S.	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 ° WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 ° WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 ° WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

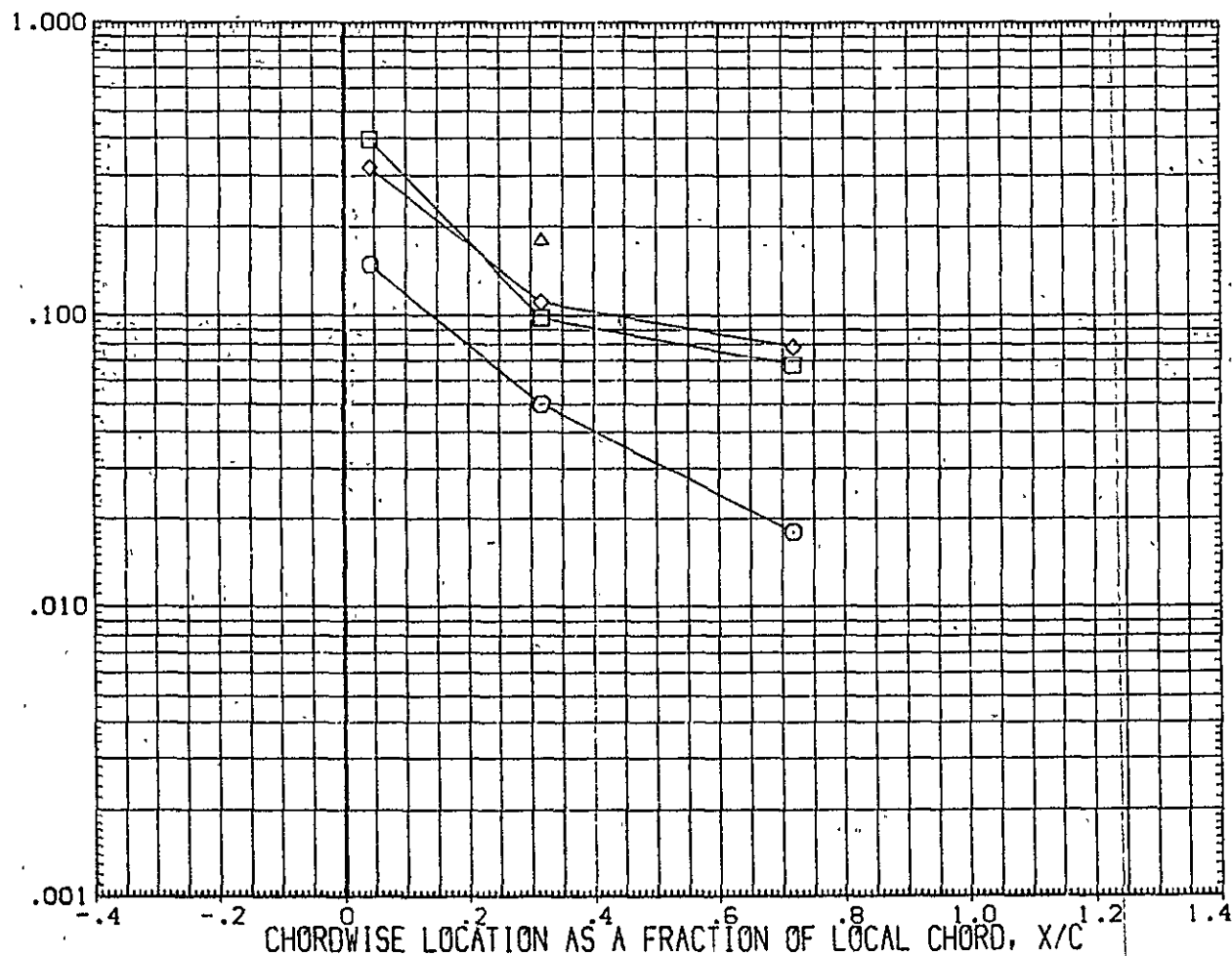


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L1

MACH = 7.000 HAW/HT = .900 $2Y/B$ = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CH12/1H21 (CAL 4ST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	CH12/1H21 (CAL 4ST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	CH12/1H21 (CAL 4ST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	CH12/1H21 (CAL 4ST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

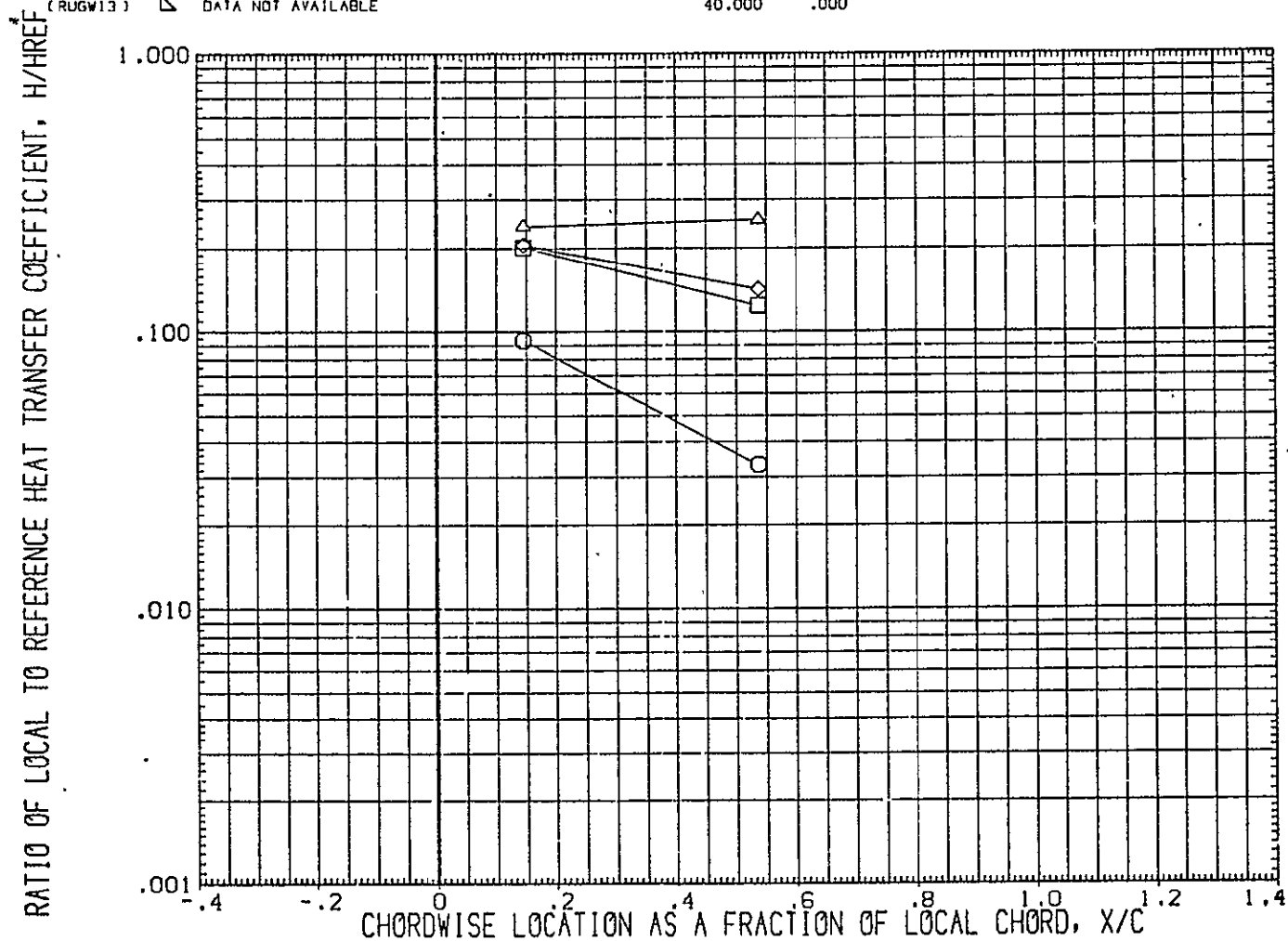


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 7.000 HAW/HT = .900 $2Y/B = .950$ PAGE 615

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

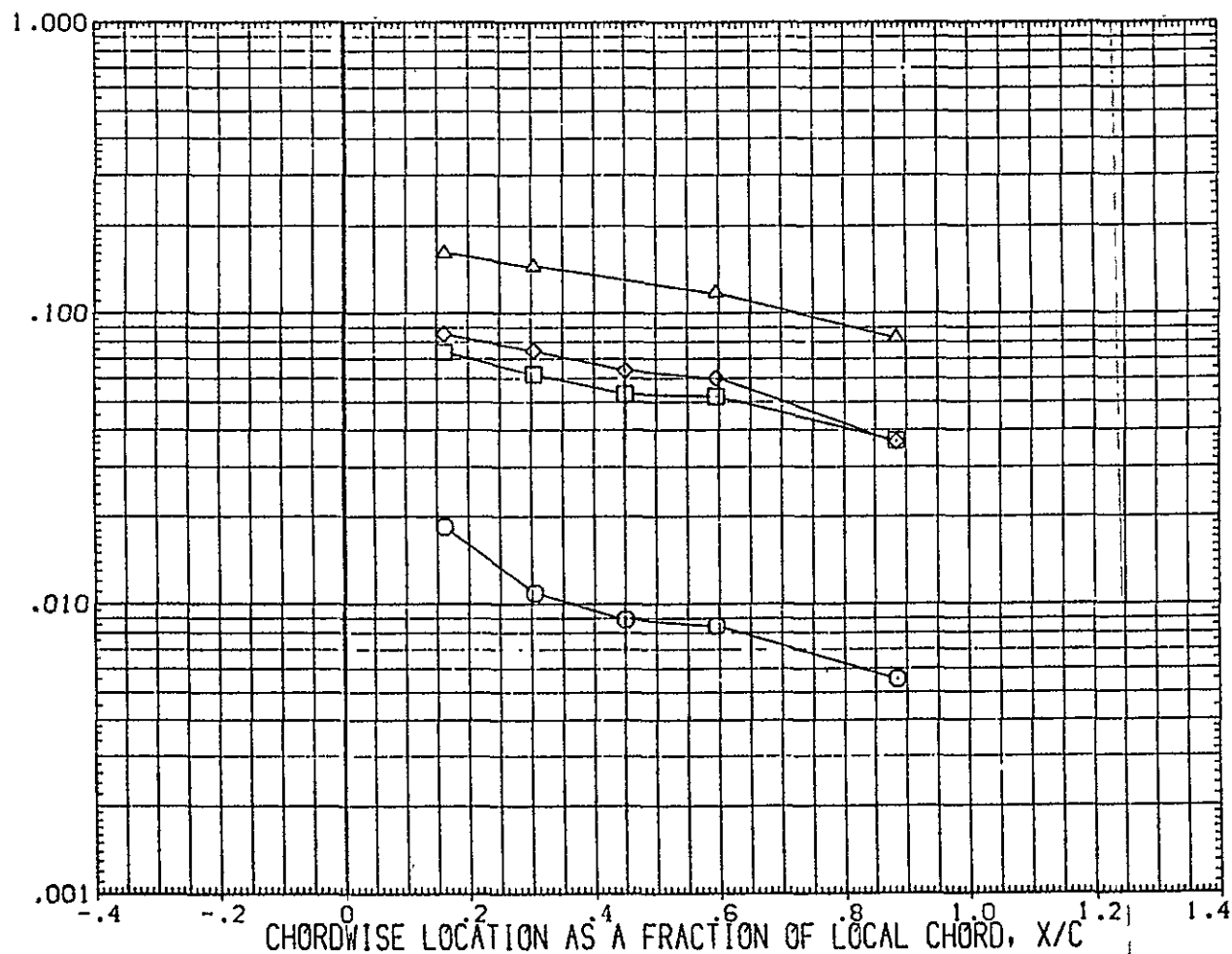


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.000 HAW/HT = 1.000 $2Y/B = .250$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	ALPHA	BETA
RUGW07)	GM12/1421 (CAL HST 173-100)	37 0	WING L.S.	.000	.000
RUGW10)	GM12/1421 (CAL HST 173-100)	37 00	WING L.S.	25.000	.000
RUGW11)	GM12/1421 (CAL HST 173-100)	37 00	WING L.S.	30.000	.000
RUGW12)	GM12/1421 (CAL HST 173-100)	37 00	WING L.S.	35.000	.000
RUGW13)	DATA NOT AVAILABLE	37 00	WING L.S.	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

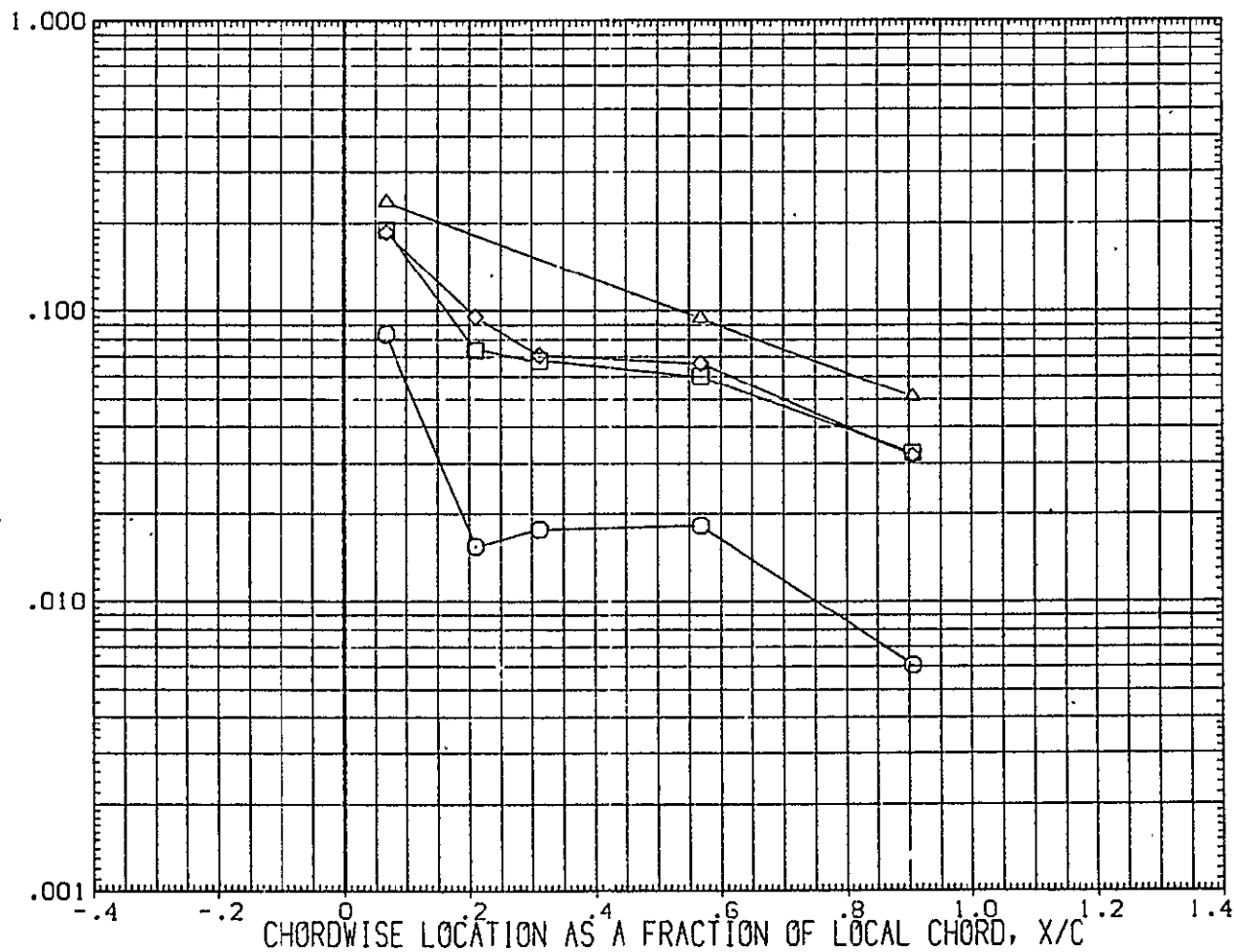


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.000 HAW/HT = 1.000 2Y/B = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGW07)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

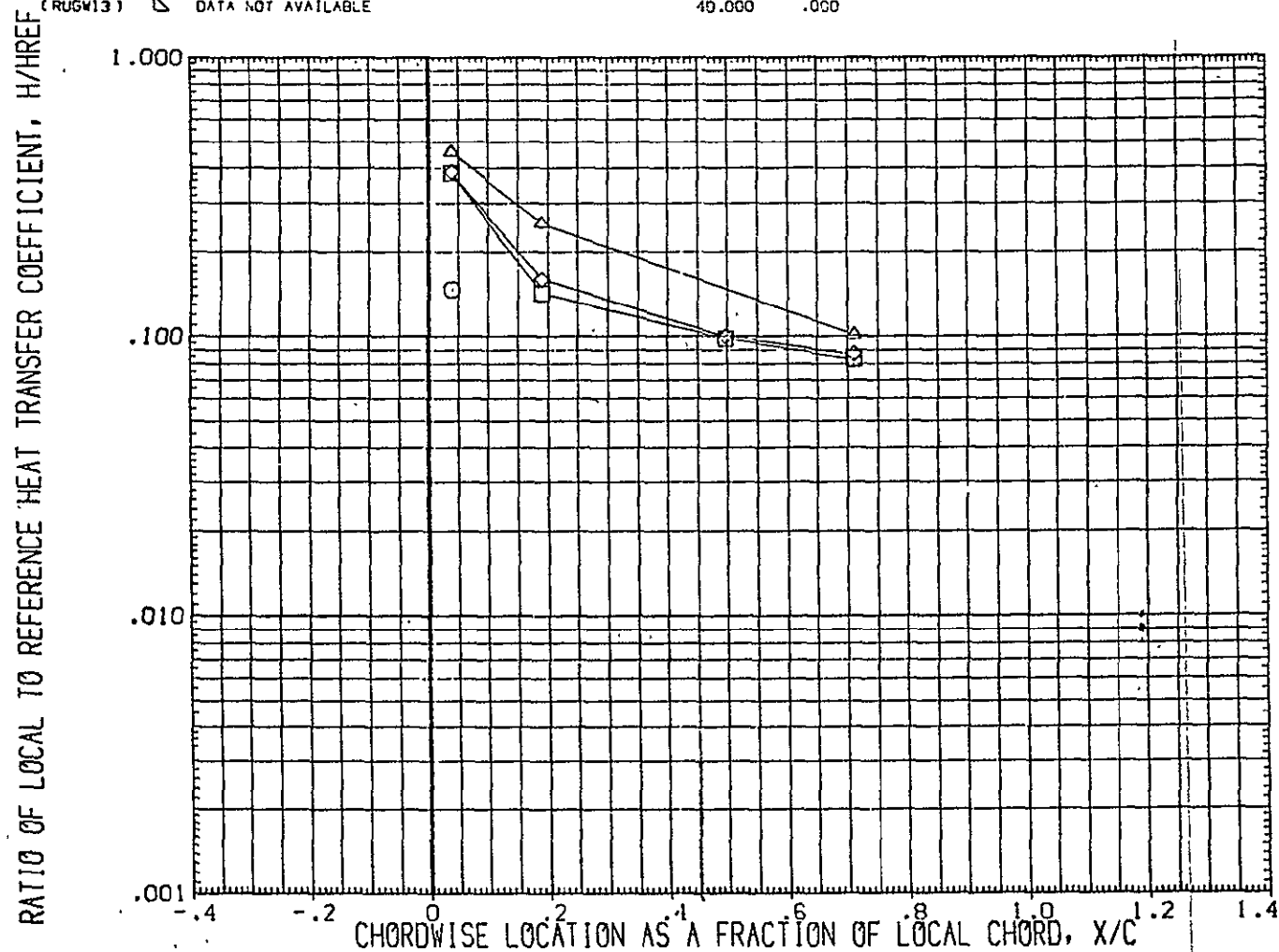


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.000 HAW/HT = 1.000 $2Y/B = .500$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

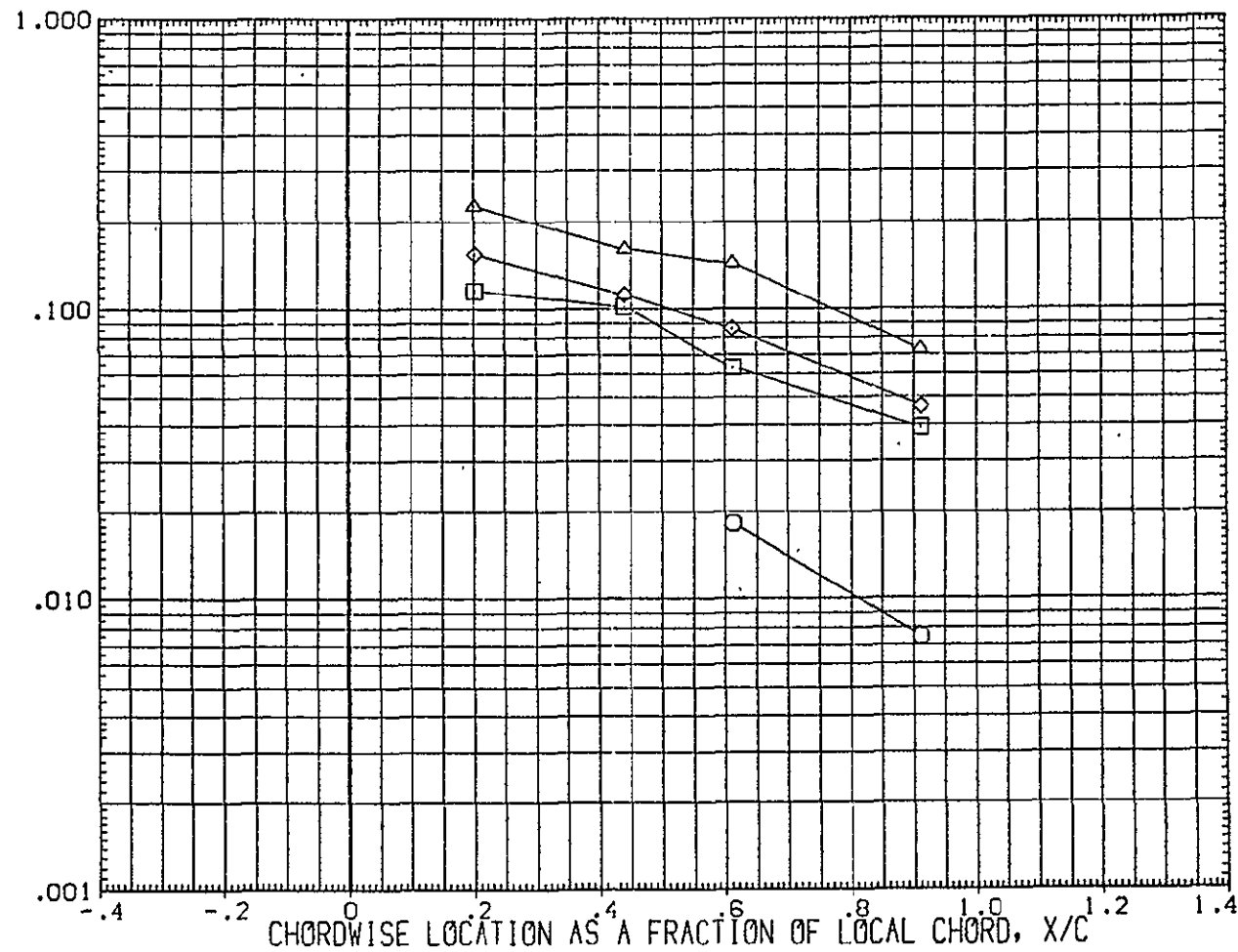


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 7.000 HAW/HT = 1.000 $2Y/B = .600$ PAGE 619

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

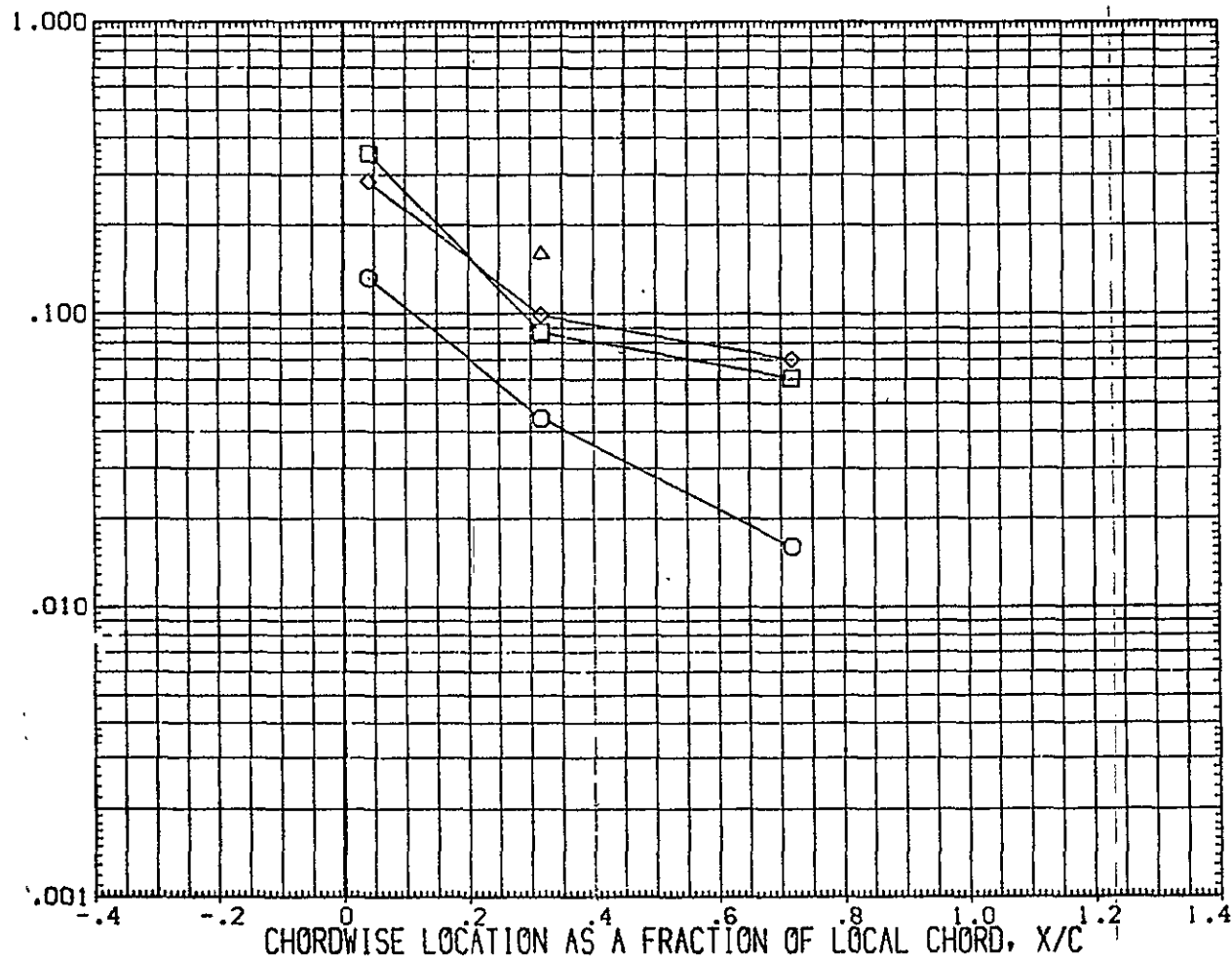


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.000 HAW/HT = 1.000 2Y/B = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

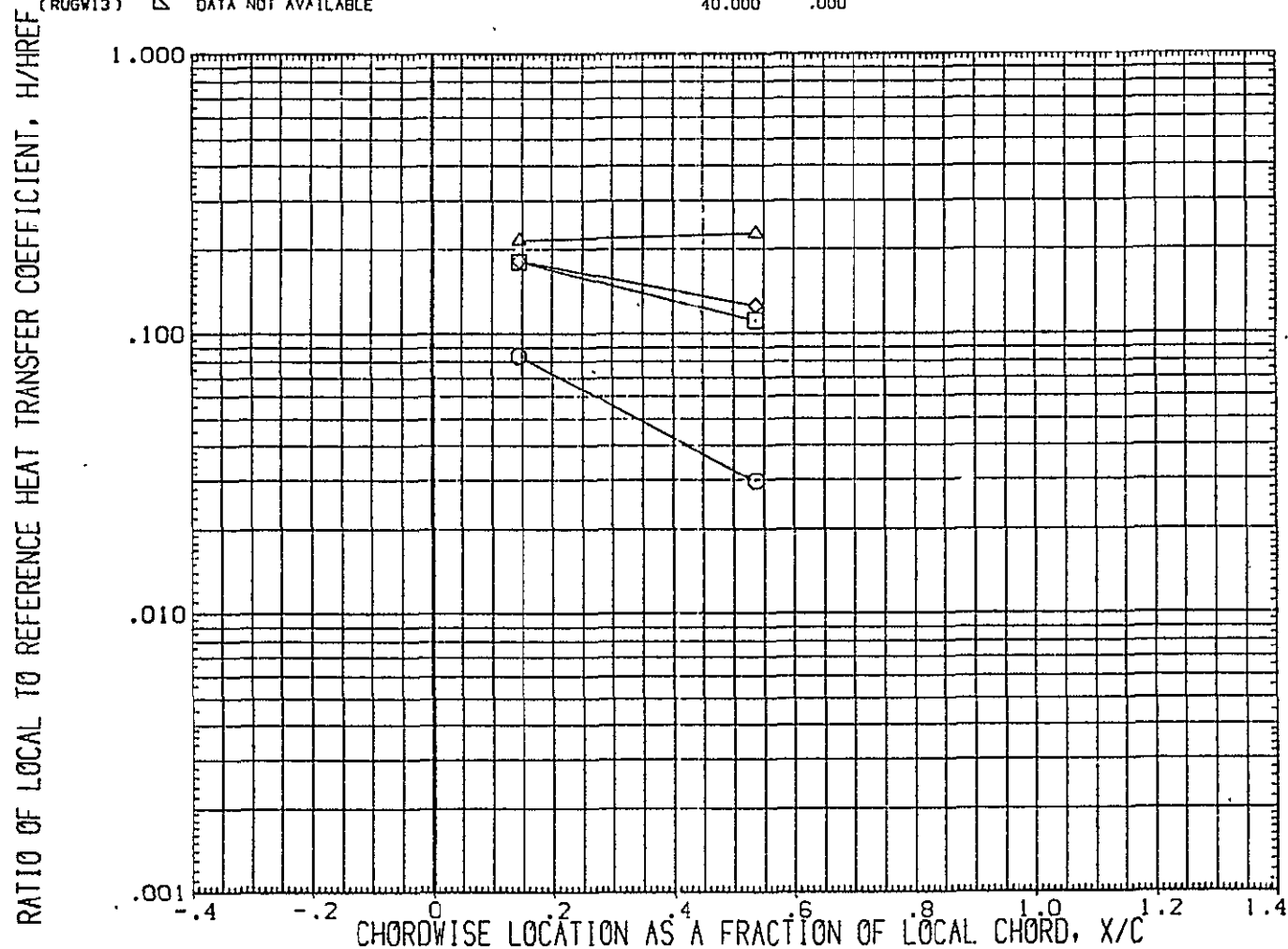


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 7.000 HAW/HT= 1.000 $2Y/B = .950$ PAGE 621

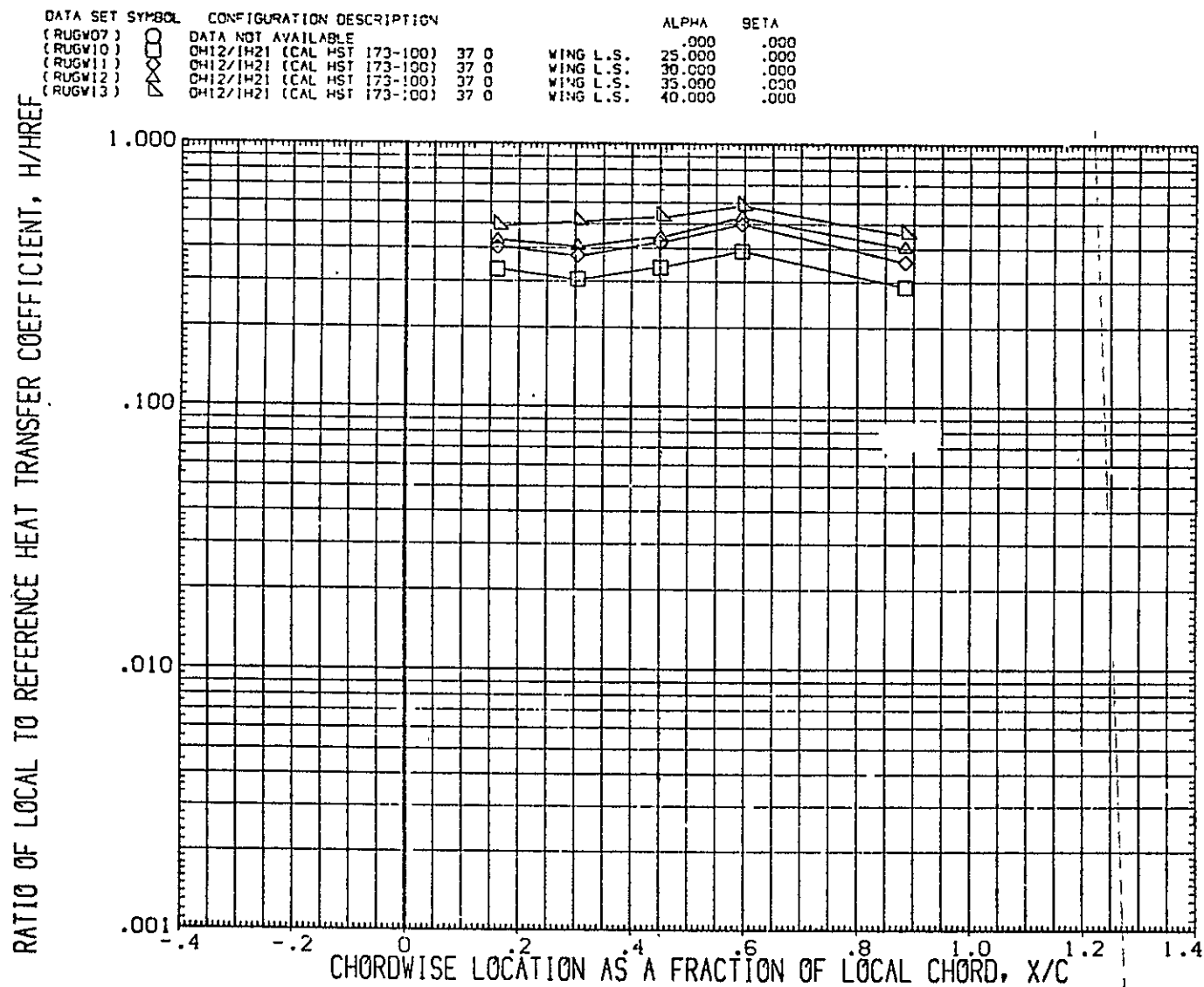


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 7.900 HAW/HT = .850 $2Y/B$ = .250 PAGE 622

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	□	DATA NOT AVAILABLE	.000	.000
(RUGW10)	◇	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	△	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	▽	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	◁	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

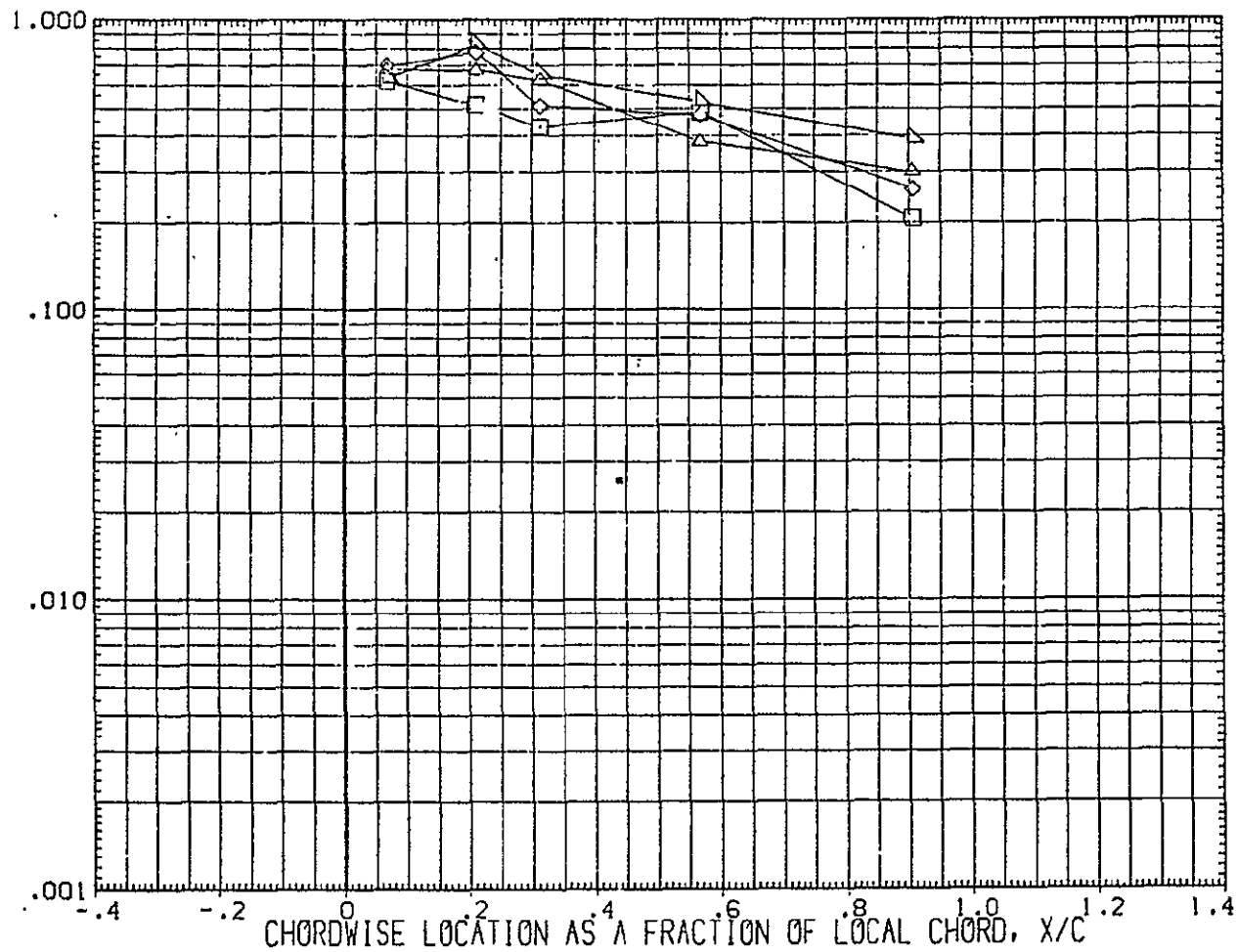


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L_1

MACH = 7.900 HAW/HT = .850 $2Y/B$ = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

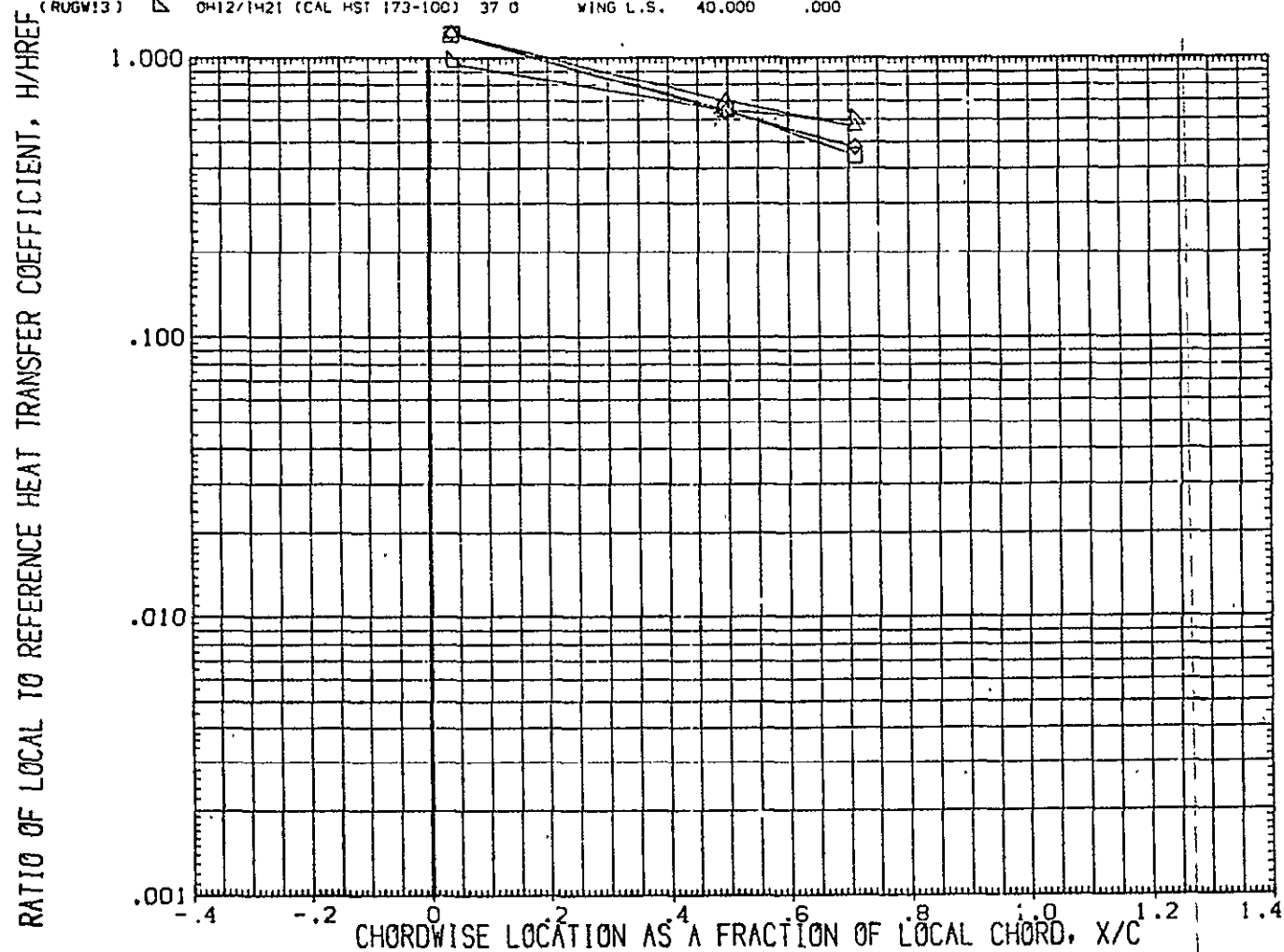


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = .850 $2Y/B$ = .500

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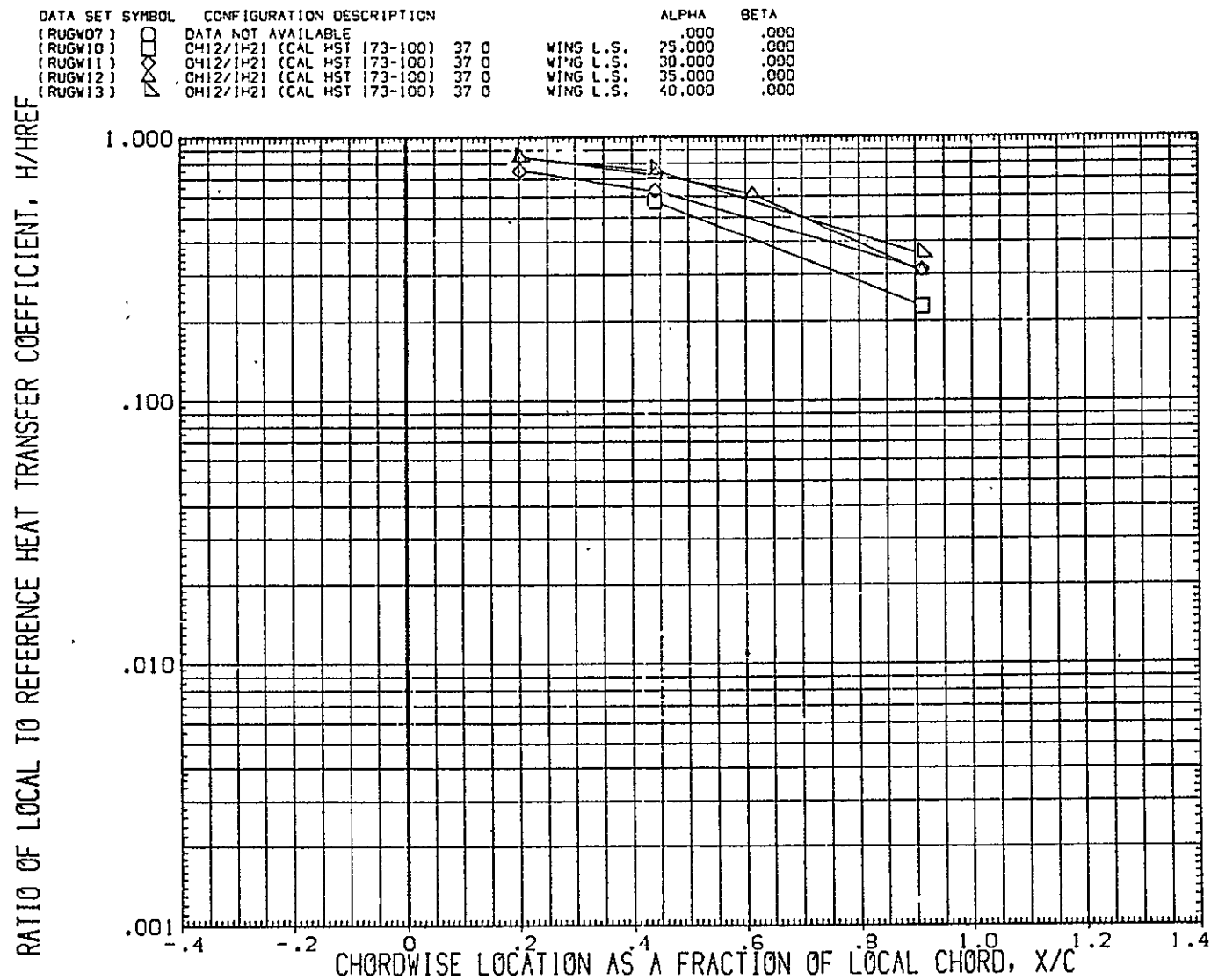


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = .850 $2Y/B$ = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

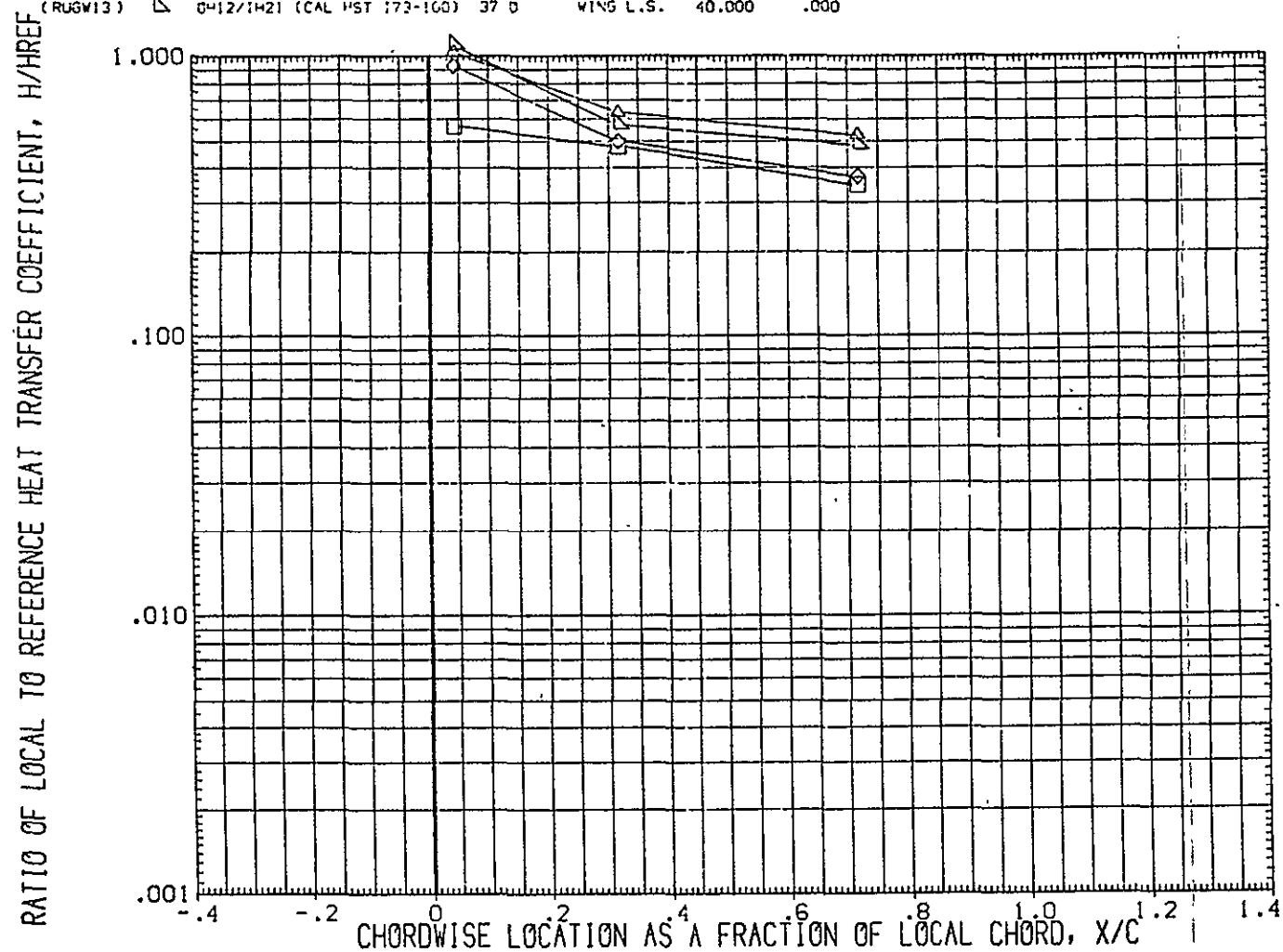


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = .850 $2Y/B$ = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000
(RUGV11)	CH12/1H21 (CAL HST 173-100) 37 0	30.000	.000
(RUGV12)	OH12/1H21 (CAL HST 173-100) 37 0	35.000	.000
(RUGV13)	OH12/1H21 (CAL HST 173-100) 37 0	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

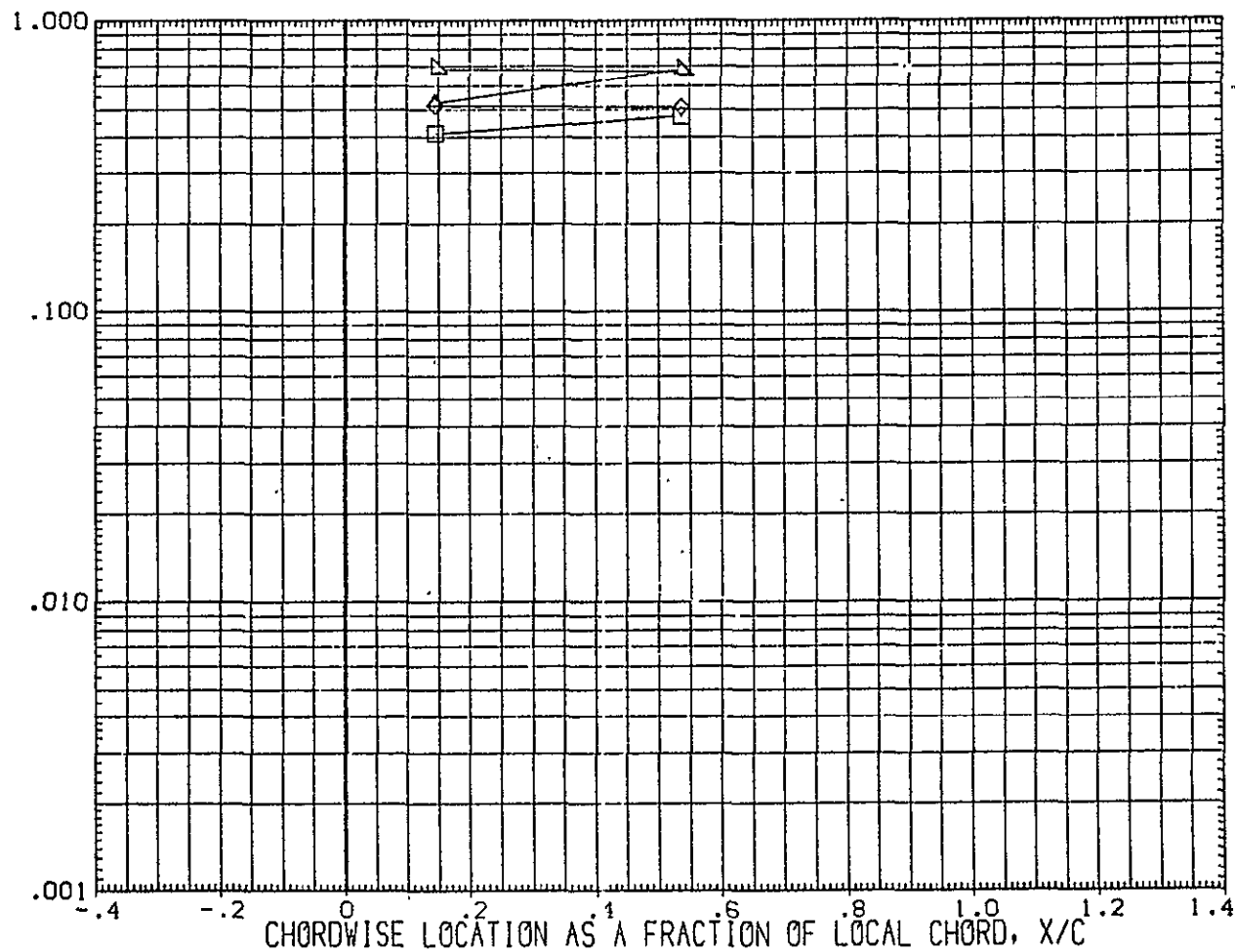


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.900, $HAW/HT = .850$, $2Y/B = .950$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

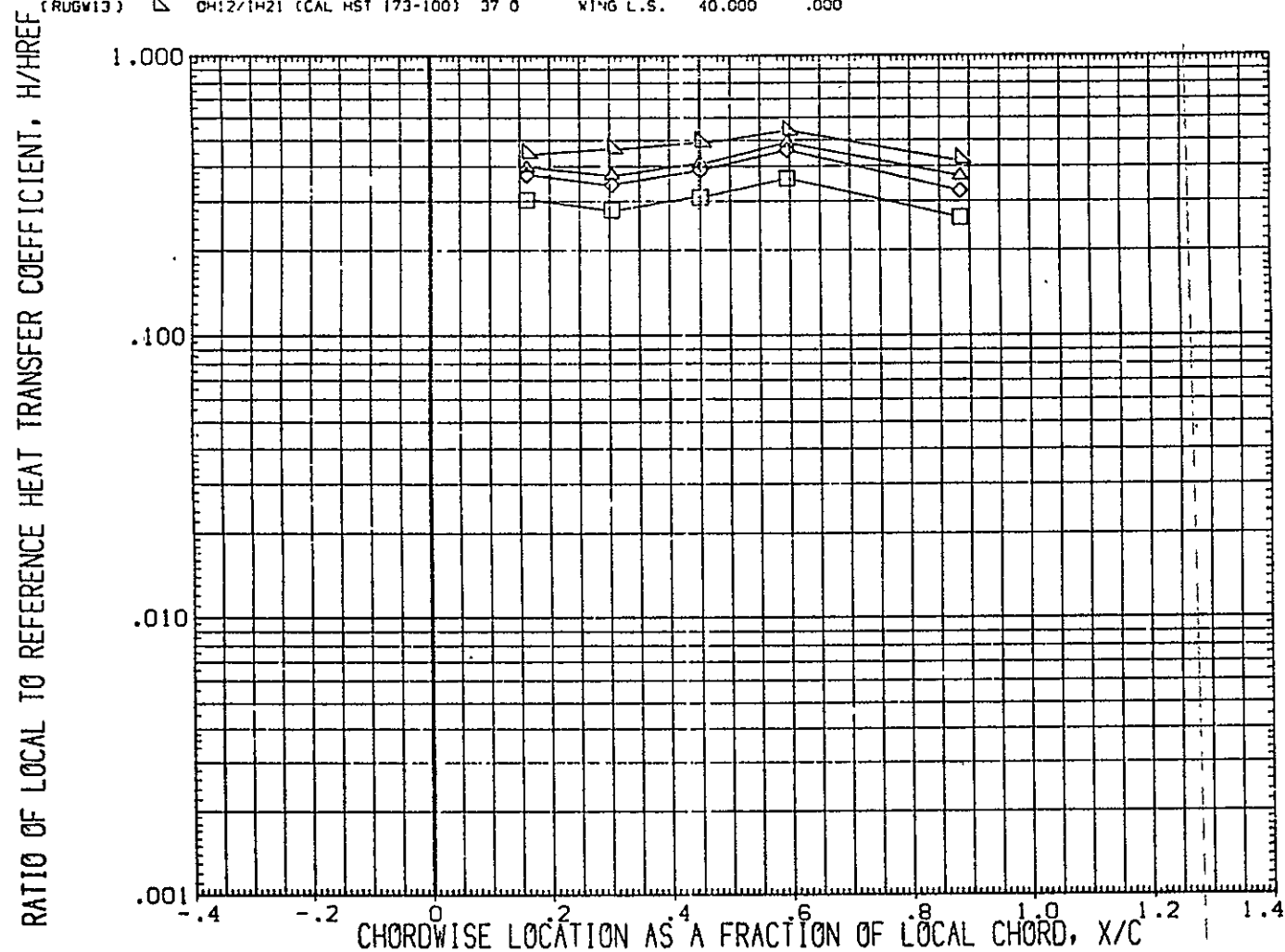


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = .900 $2Y/B$ = .250

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
RUGV07	□	DATA NOT AVAILABLE	.000	.000
RUGV10	×	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
RUGV11	△	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
RUGV12	◇	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.030
RUGV13	▽	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

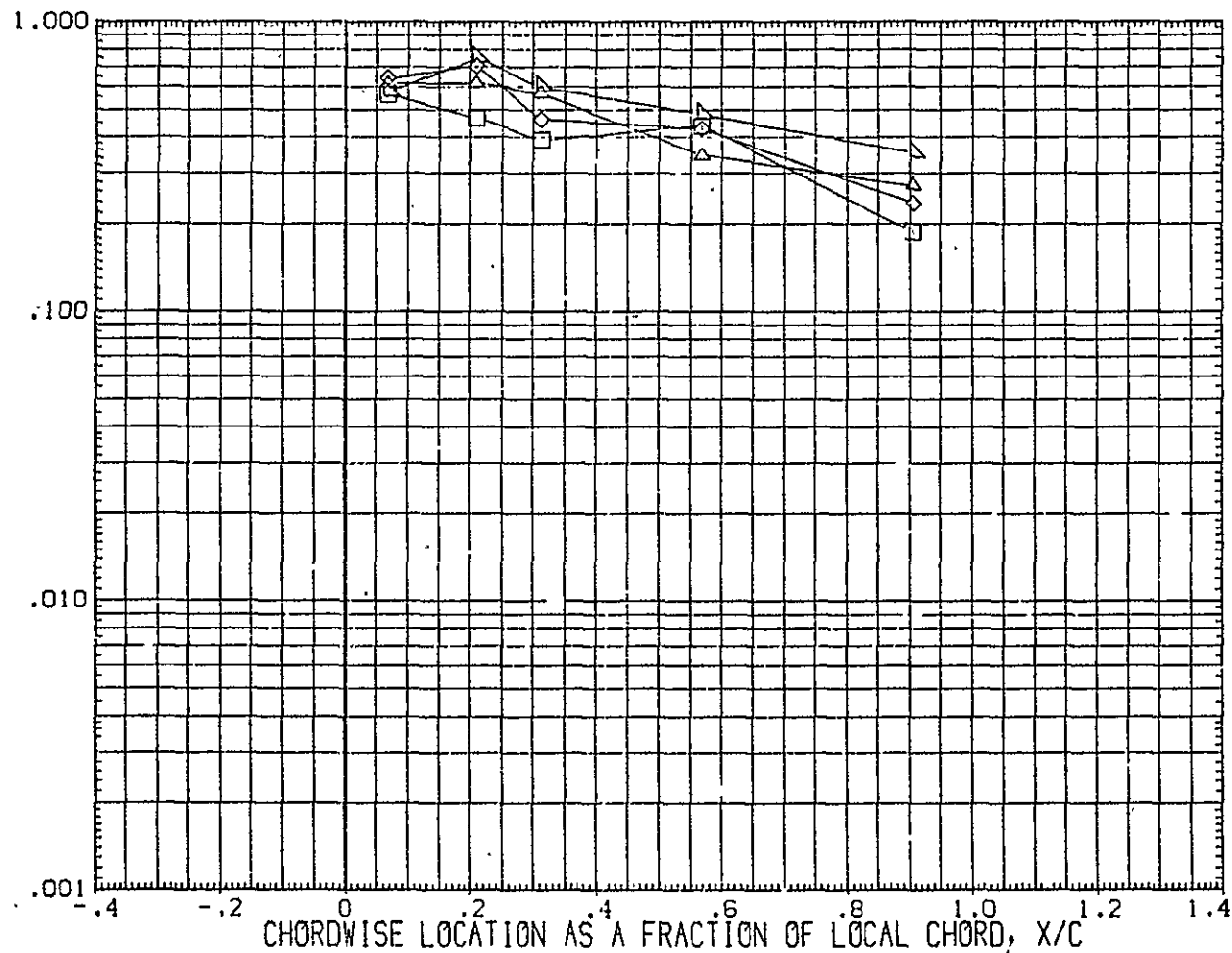
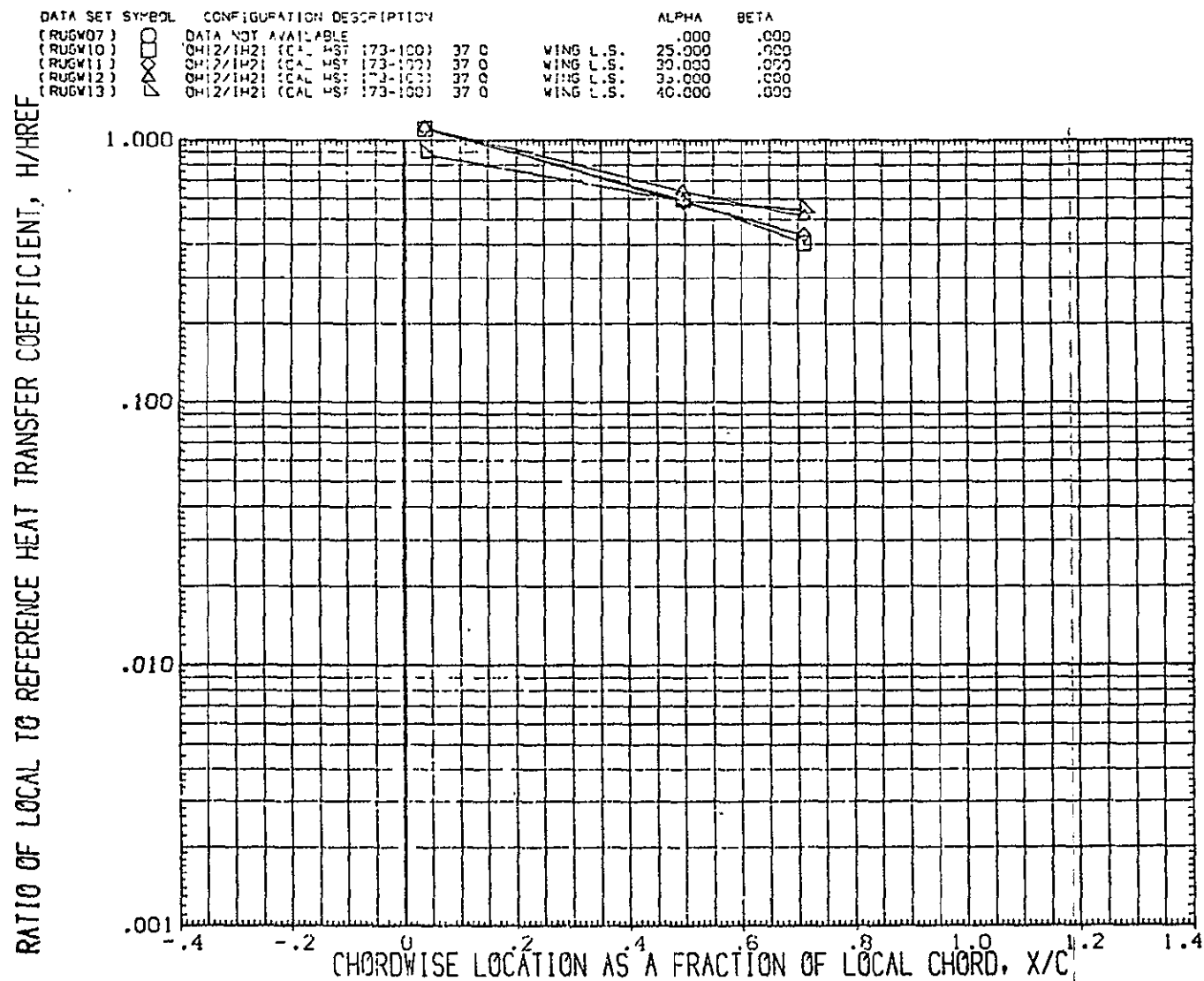


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = .900 $2Y/B$ = .400



MACH = 7.900 HAW/HT = .900 2Y/B = .500

PAGE 630

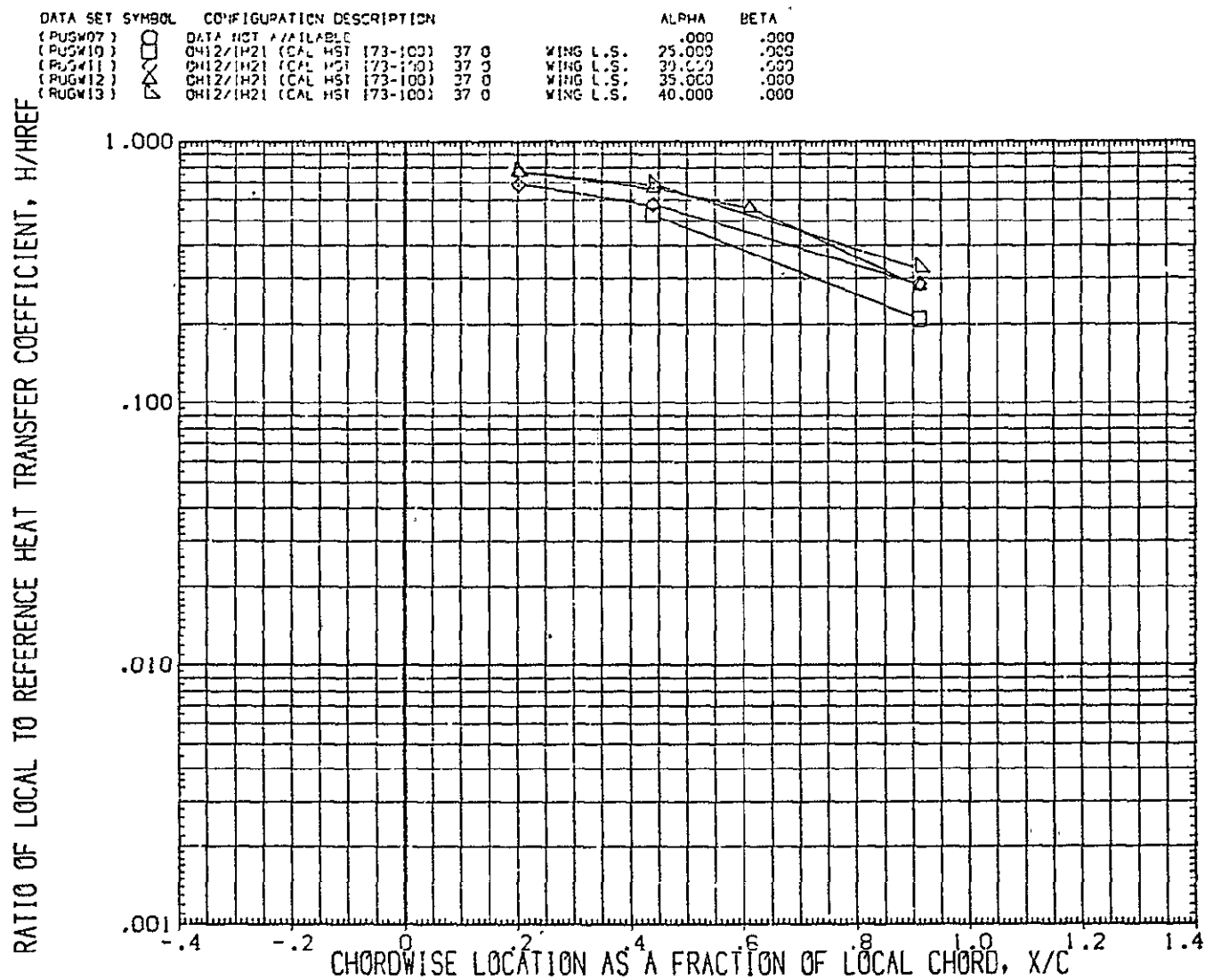
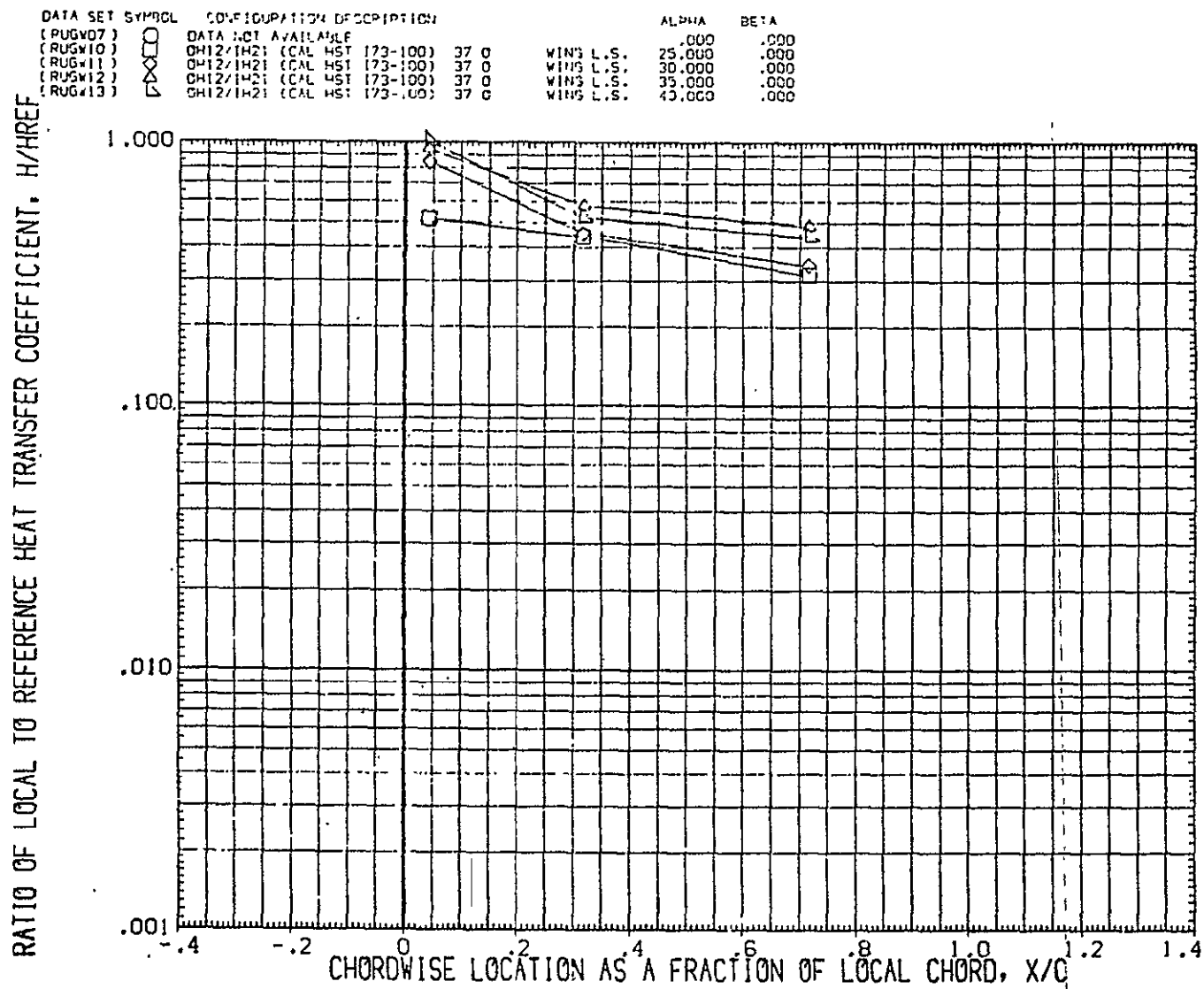


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = .900 $2Y/B$ = .600

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MACH = 7.900 HAW/HT = .900 2Y/B = .750

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	OH12/IH21 (CAL HST 173-100) 37 0	25.000	.000
(RUGV11)	OH12/IH21 (CAL HST 173-100) 37 0	30.000	.000
(RUGV12)	OH12/IH21 (CAL HST 173-100) 37 0	35.000	.000
(RUGV13)	OH12/IH21 (CAL HST 173-100) 37 0	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

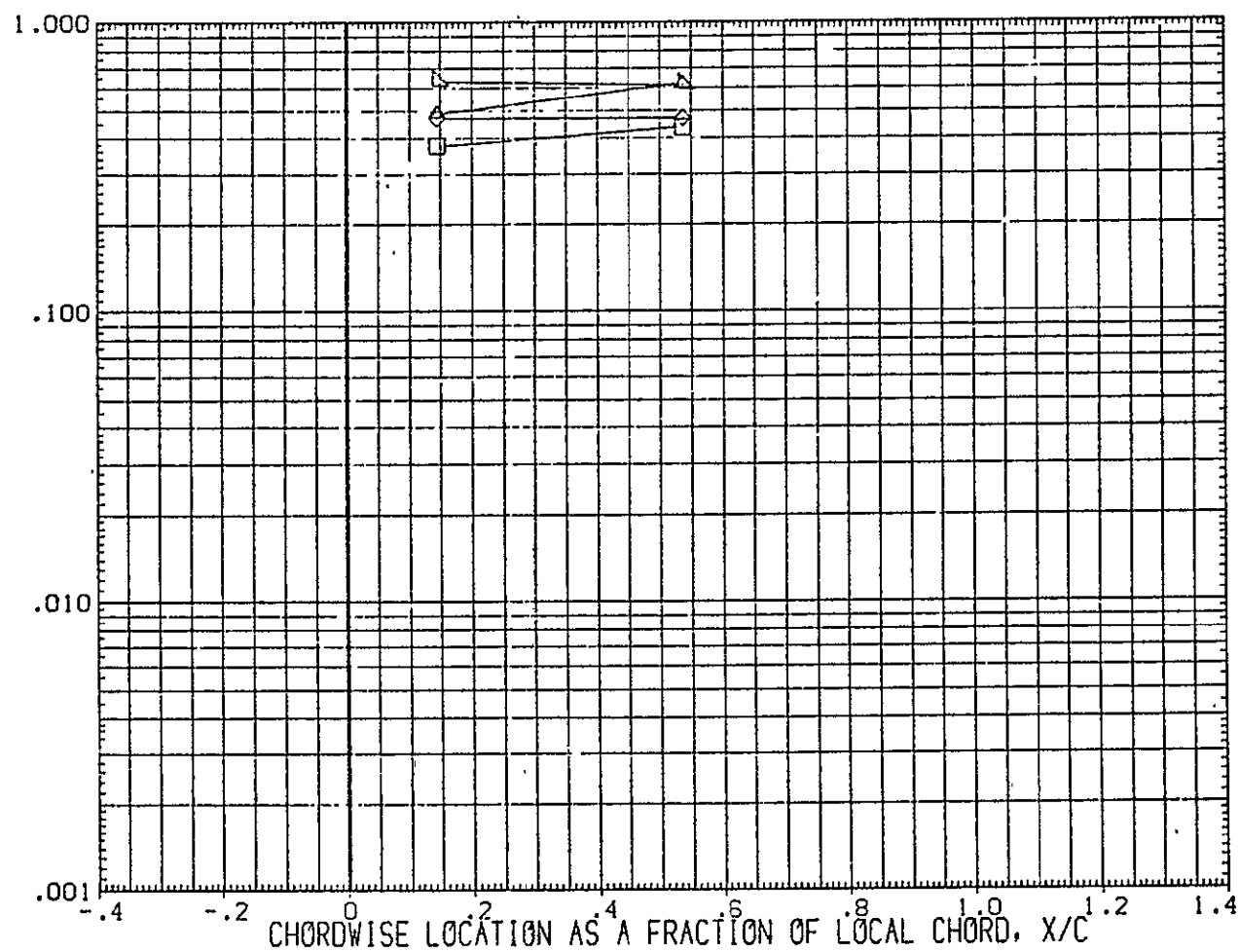


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = .900 2Y/B = .950

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	□	DATA NOT AVAILABLE	.000	.000
(RUGW10)	◇	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	△	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	▽	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	◻	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

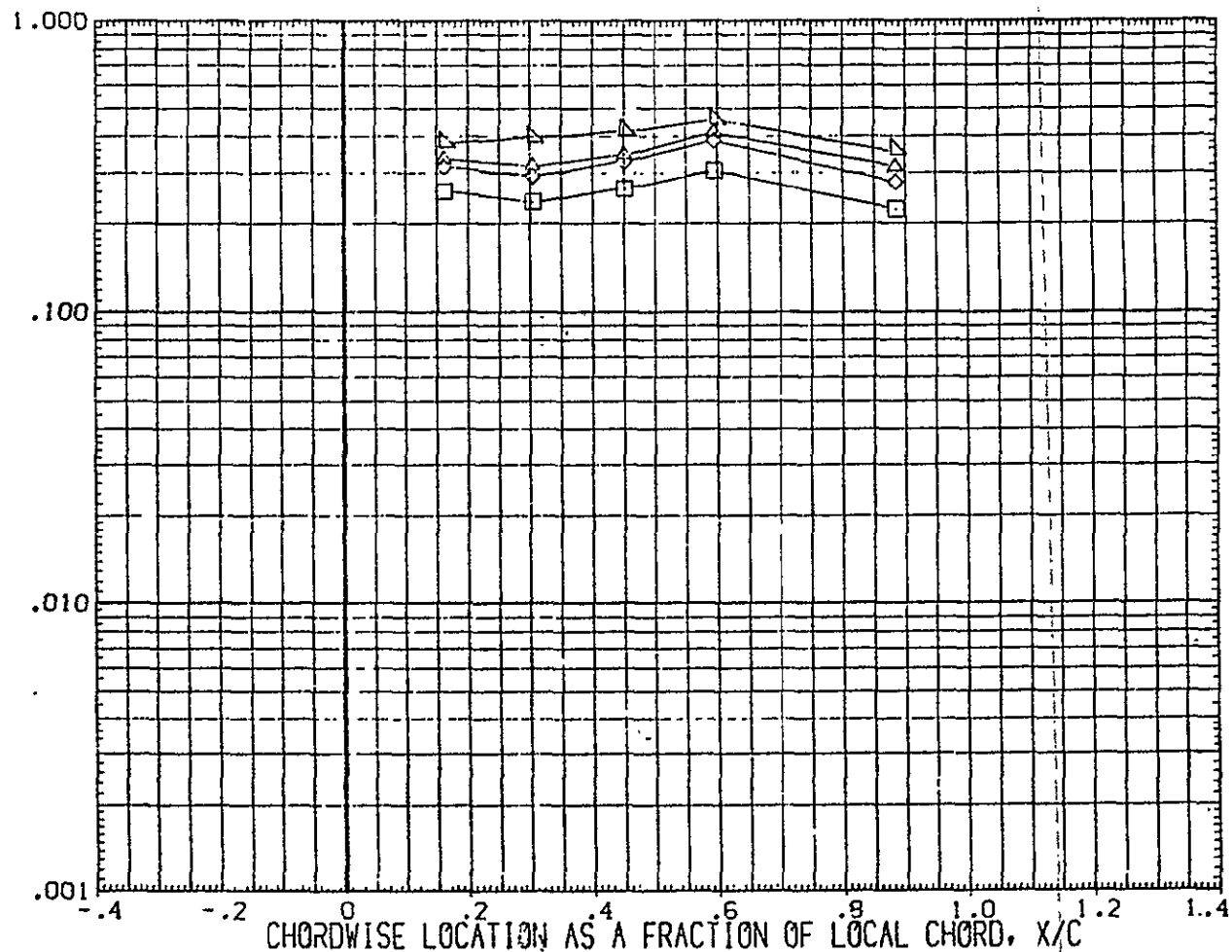


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = 1.000 $2Y/B = .250$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	CH12/IH21 [CAL HST 173-100] 37 0 WING L.S.	25.000	.000
(RUGW11)	CH12/IH21 [CAL HST 173-100] 37 0 WING L.S.	30.000	.000
(RUGW12)	CH12/IH21 [CAL HST 173-100] 37 0 WING L.S.	35.000	.000
(RUGW13)	CH12/IH21 [CAL HST 173-100] 37 0 WING L.S.	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

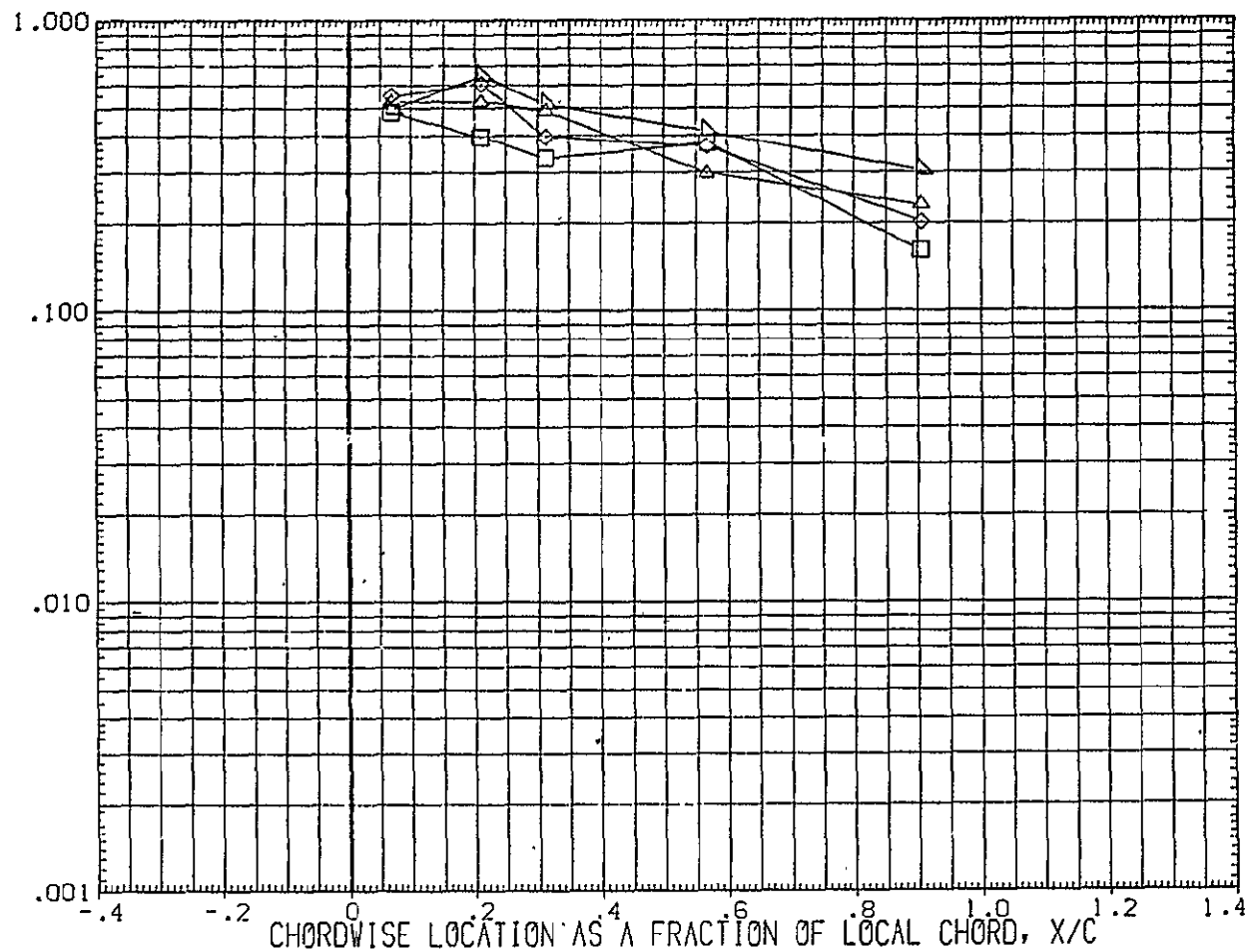


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = 1.000 $2Y/B = .400$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE		
(RUGW10)	OH12/1H21 (CAL PST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

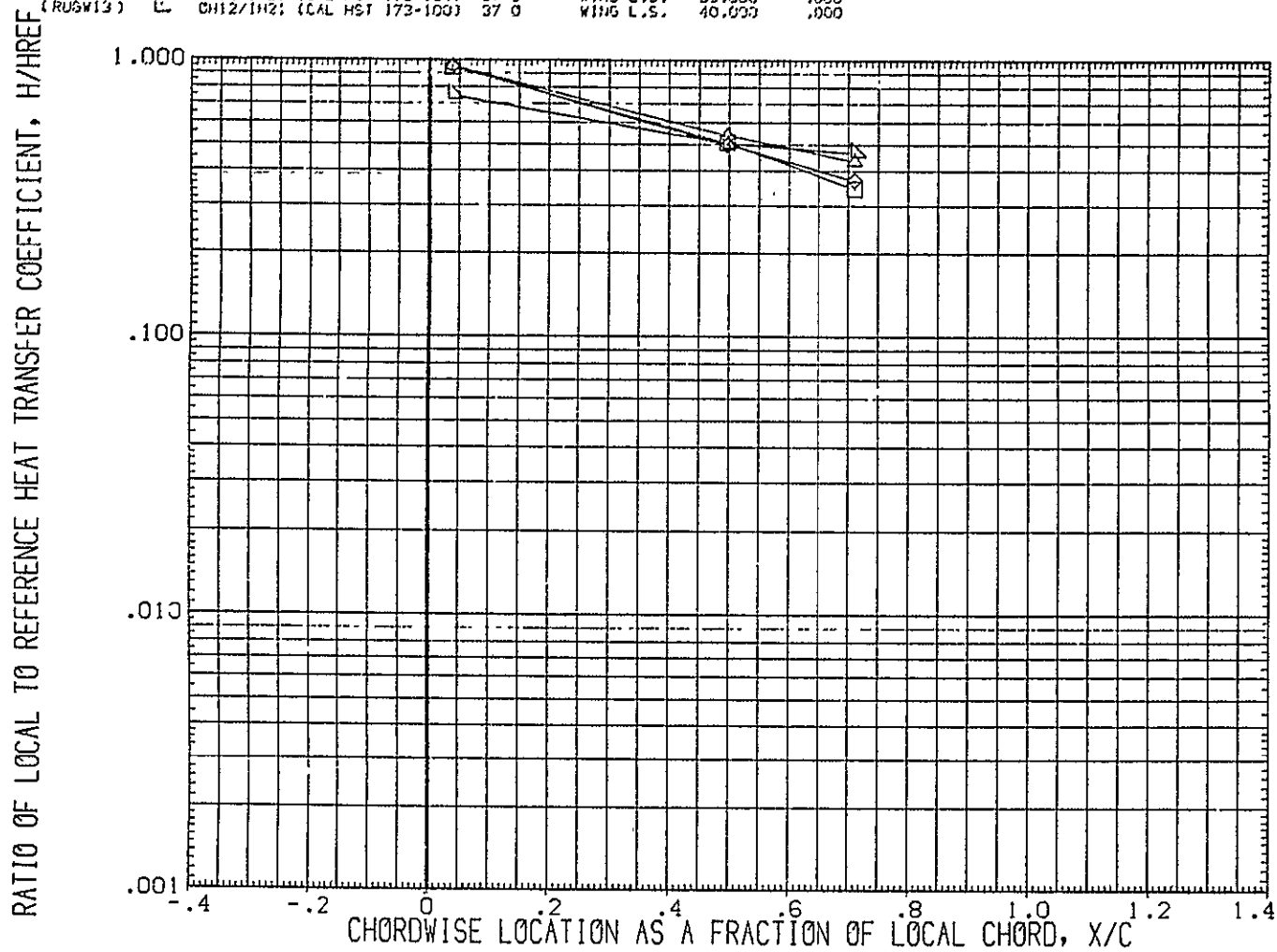


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = 1.000 $2Y/B = .500$

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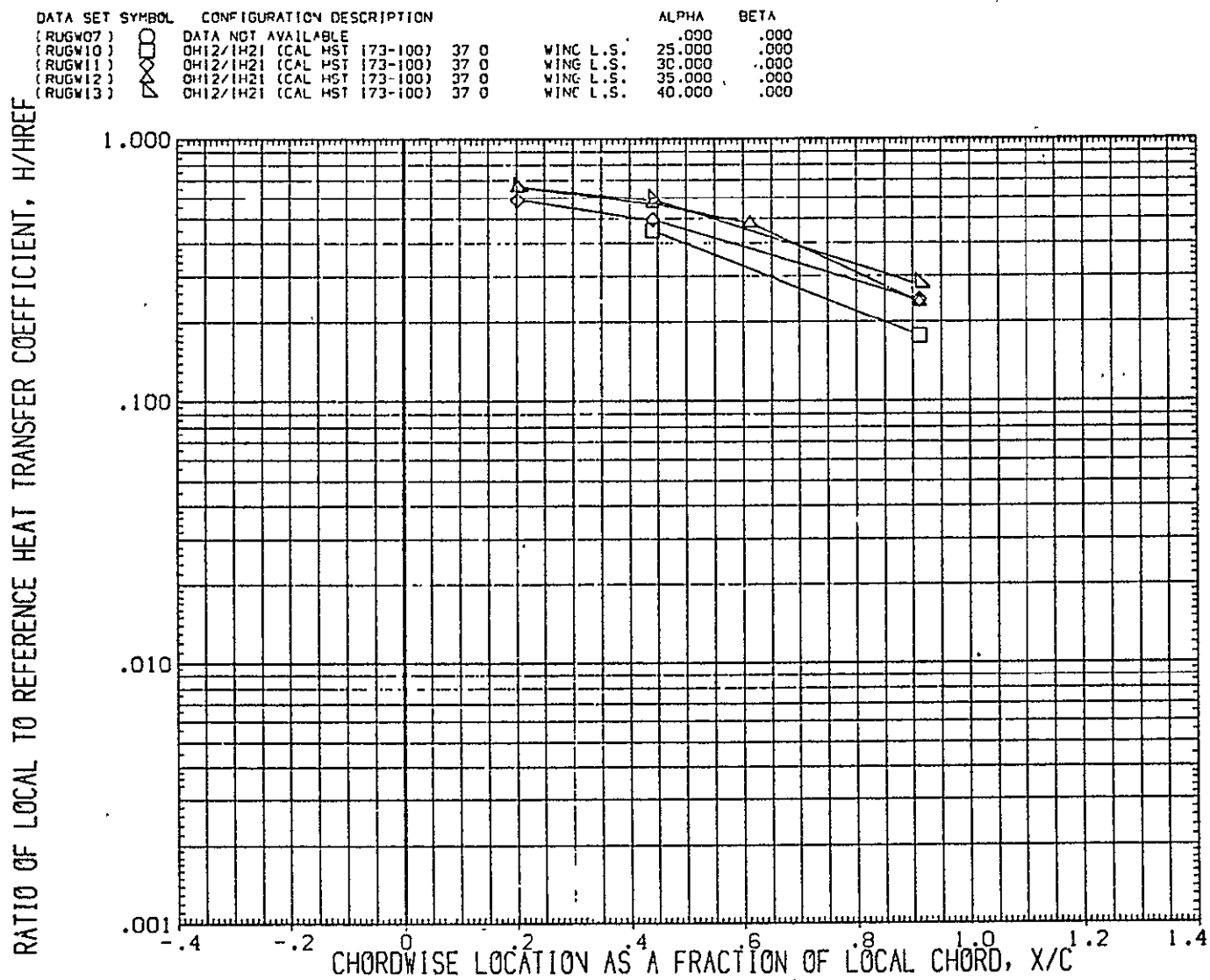
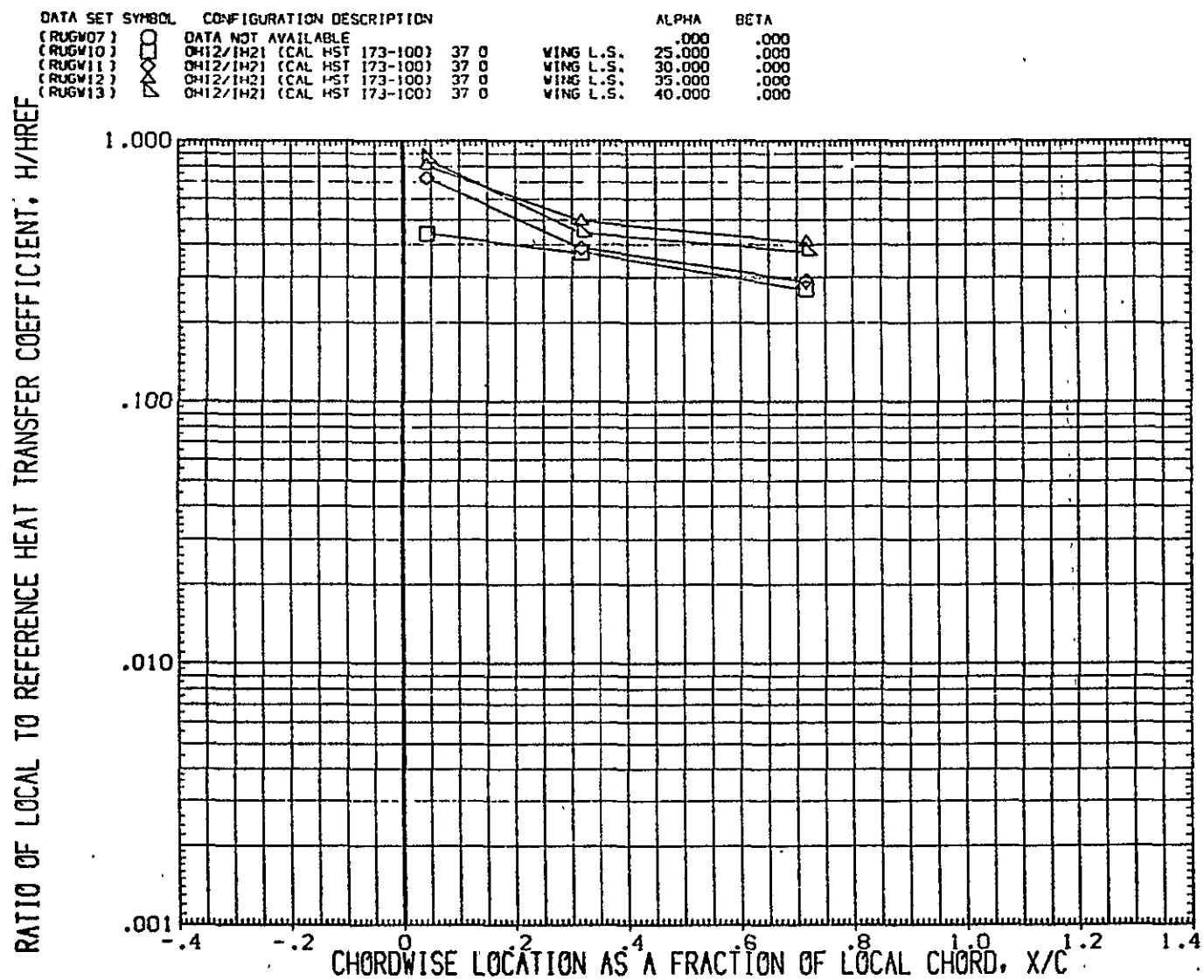


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = 1.000 $2Y/B = .600$



MACH = 7.900 HAW/HT = 1.000 2Y/B = .750 PAGE 638

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

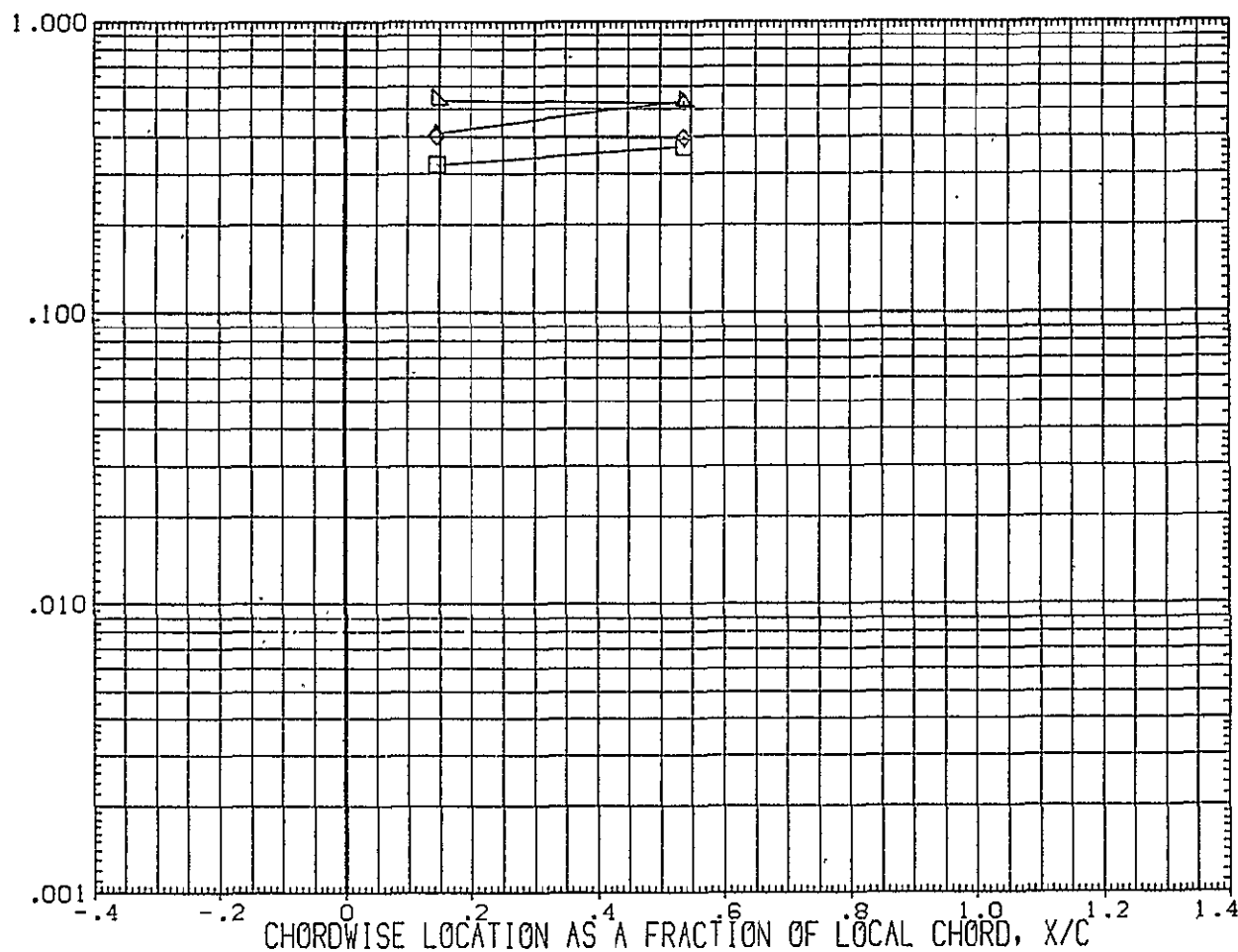


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT = 1.000 $2Y/B = .950$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	DATA NOT AVAILABLE	30.000	.000
(RUGW12)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

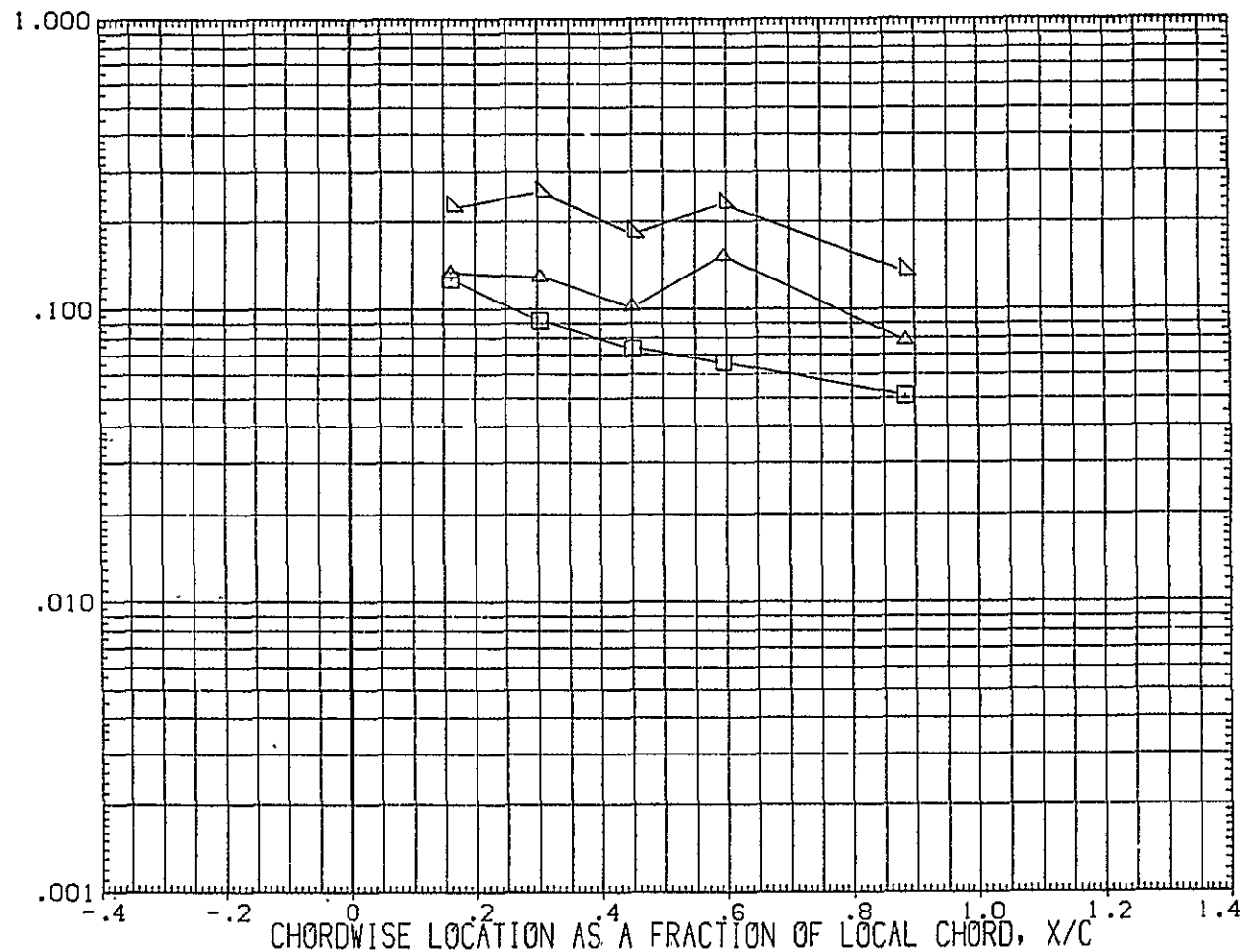


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = .850 2Y/B = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.300	.000
(RUGW10)	OH12/IH21 (CAL HST [73-100] 37 0 WING L.S.	25.000	.000
(RUGW11)	DATA NOT AVAILABLE	30.000	.000
(RUGW12)	OH12/IH21 (CAL HST [73-100] 37 0 WING L.S.	35.000	.000
(RUGW13)	OH12/IH21 (CAL HST [73-100] 37 0 WING L.S.	40.000	.000

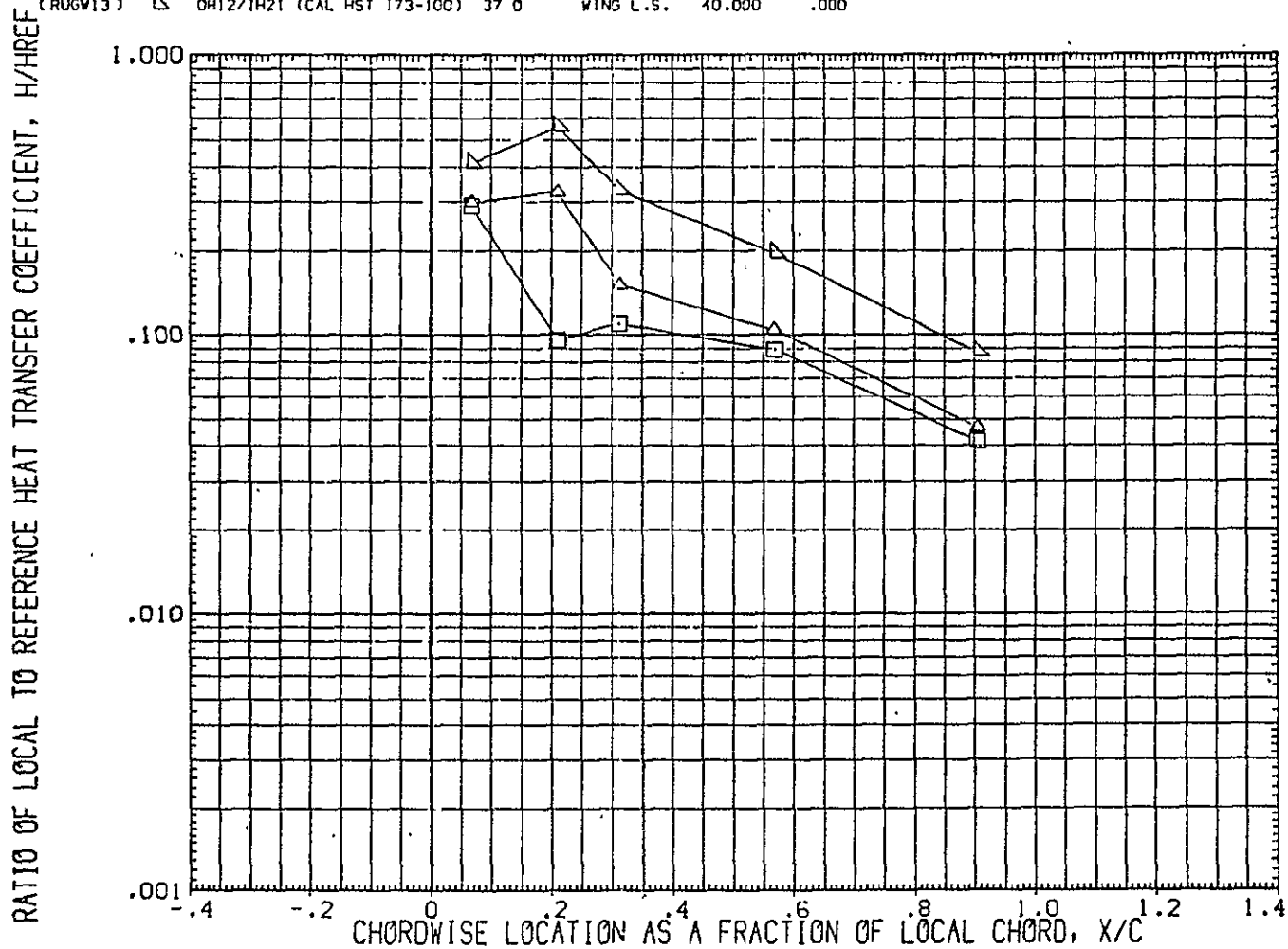


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = .850 $2Y/B$ = .400

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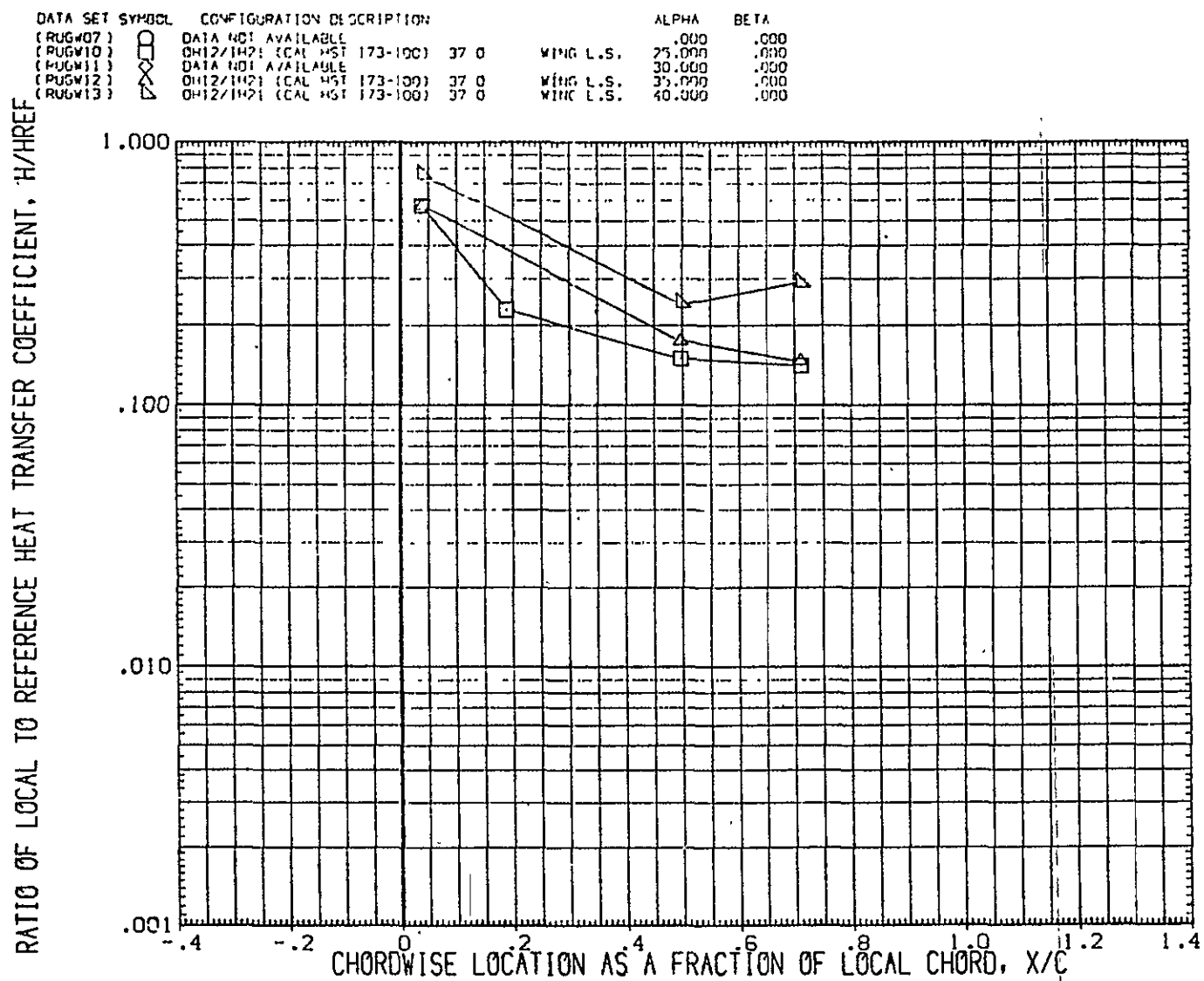


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 8.010 HAW/HT = .850 $2Y/B$ = .500 PAGE 642

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/1P21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	DATA NOT AVAILABLE	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	OH12/1P21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

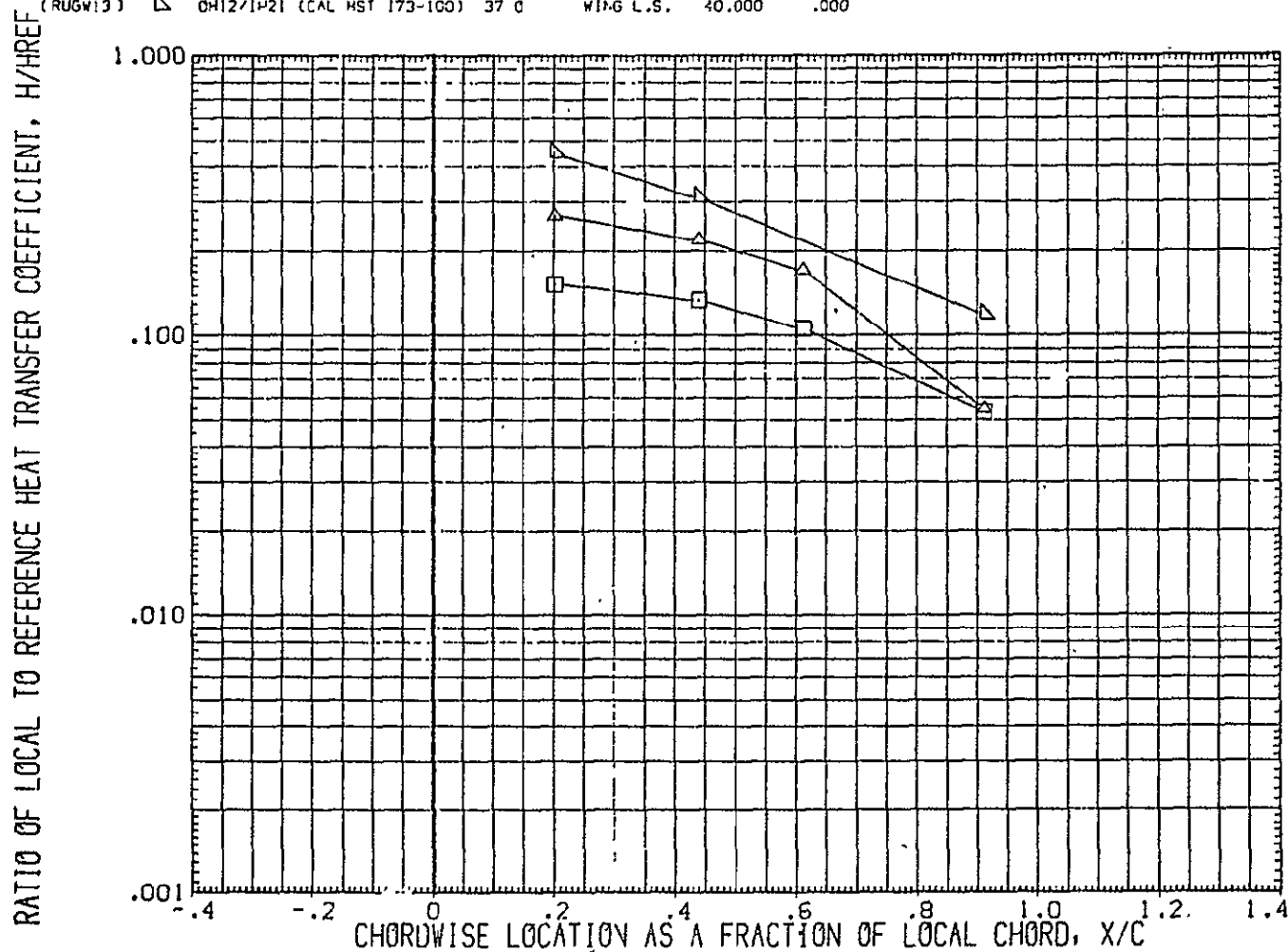


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = .850 $2Y/B$ = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OW12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	DATA NOT AVAILABLE	30.000	.000
(RUGW12)	OW12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	OW12/1H21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

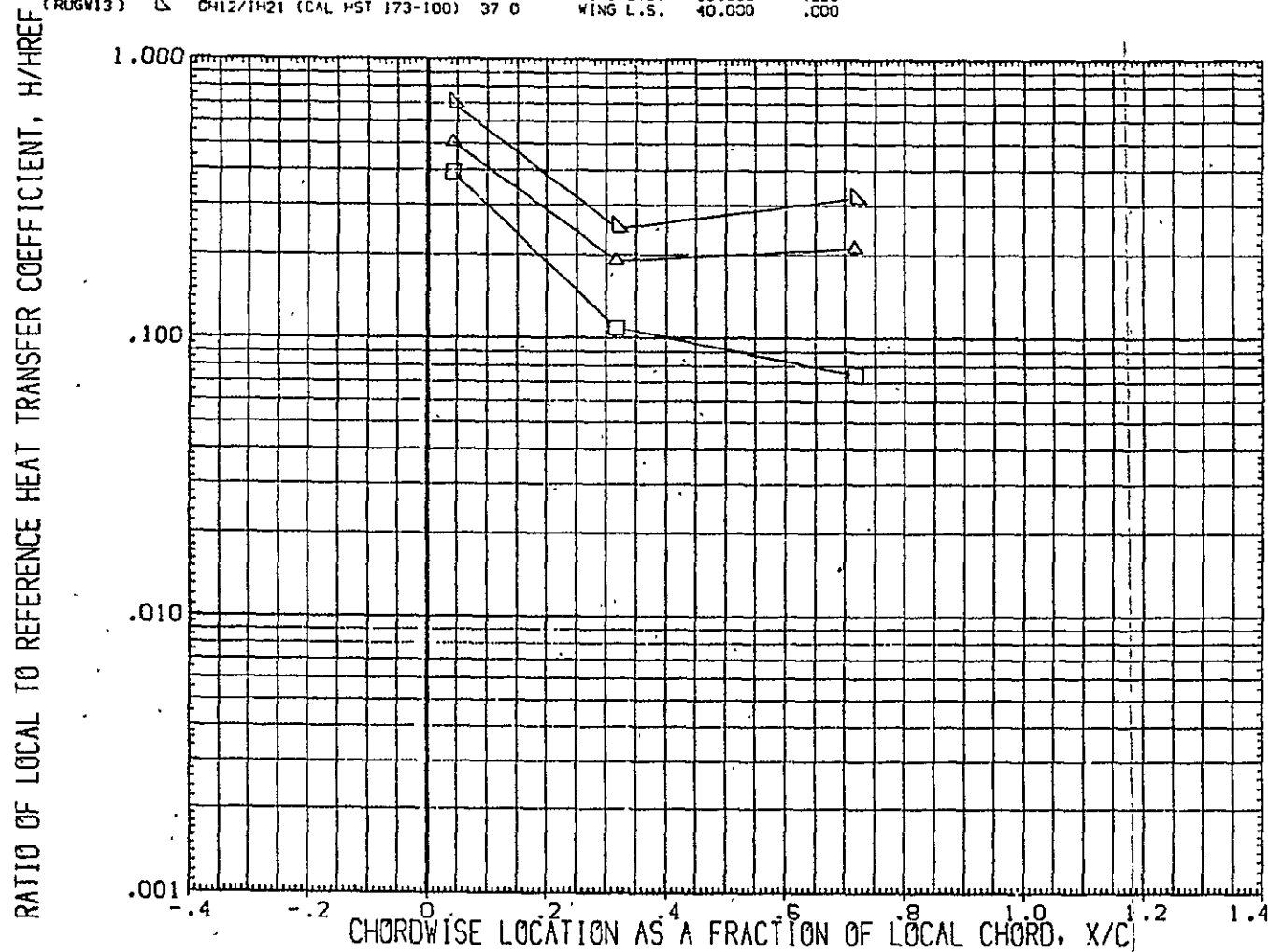
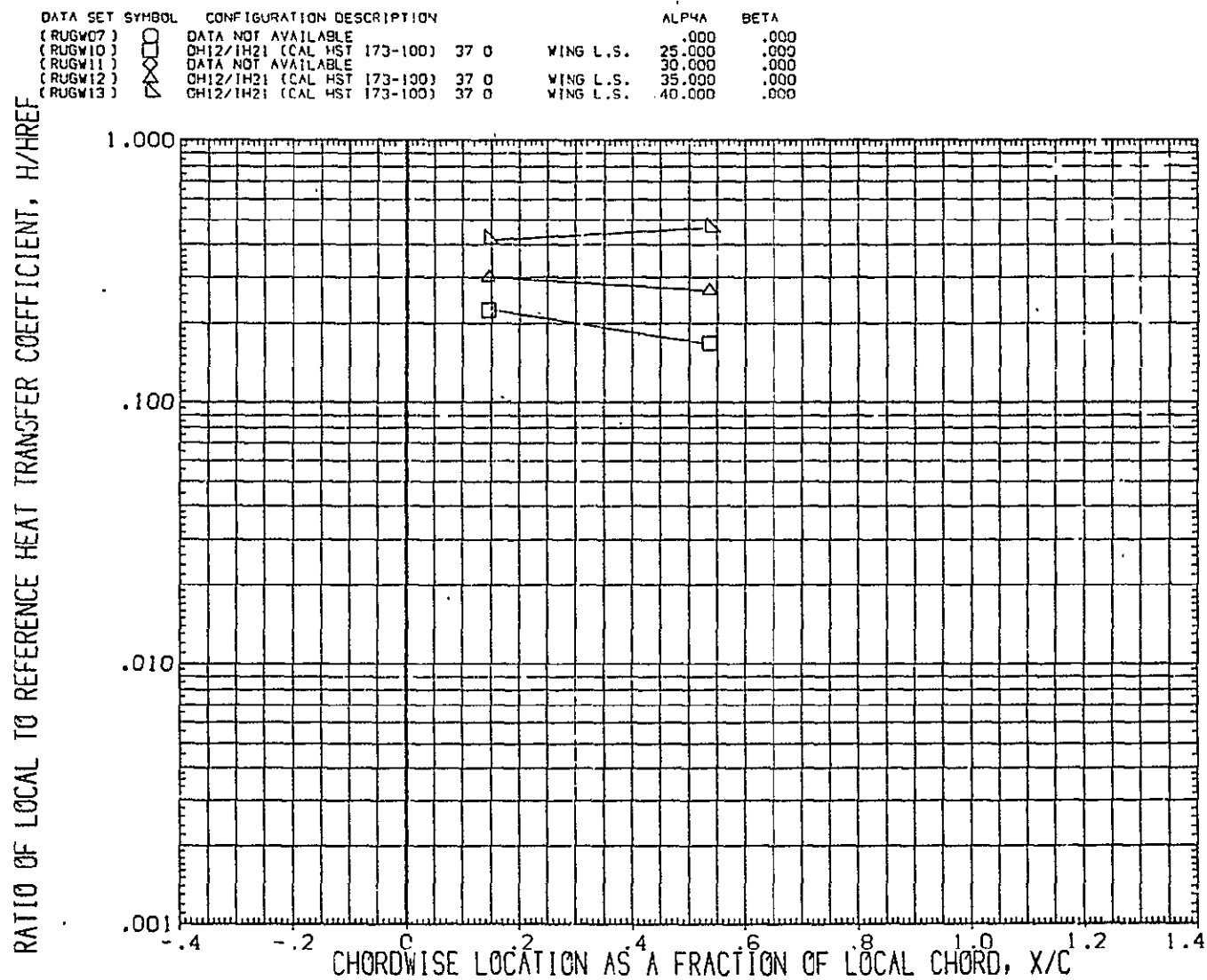


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = .850 $2Y/B$ = .750



MACH = 8.010 HAW/HT = .850 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	DATA NOT AVAILABLE	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

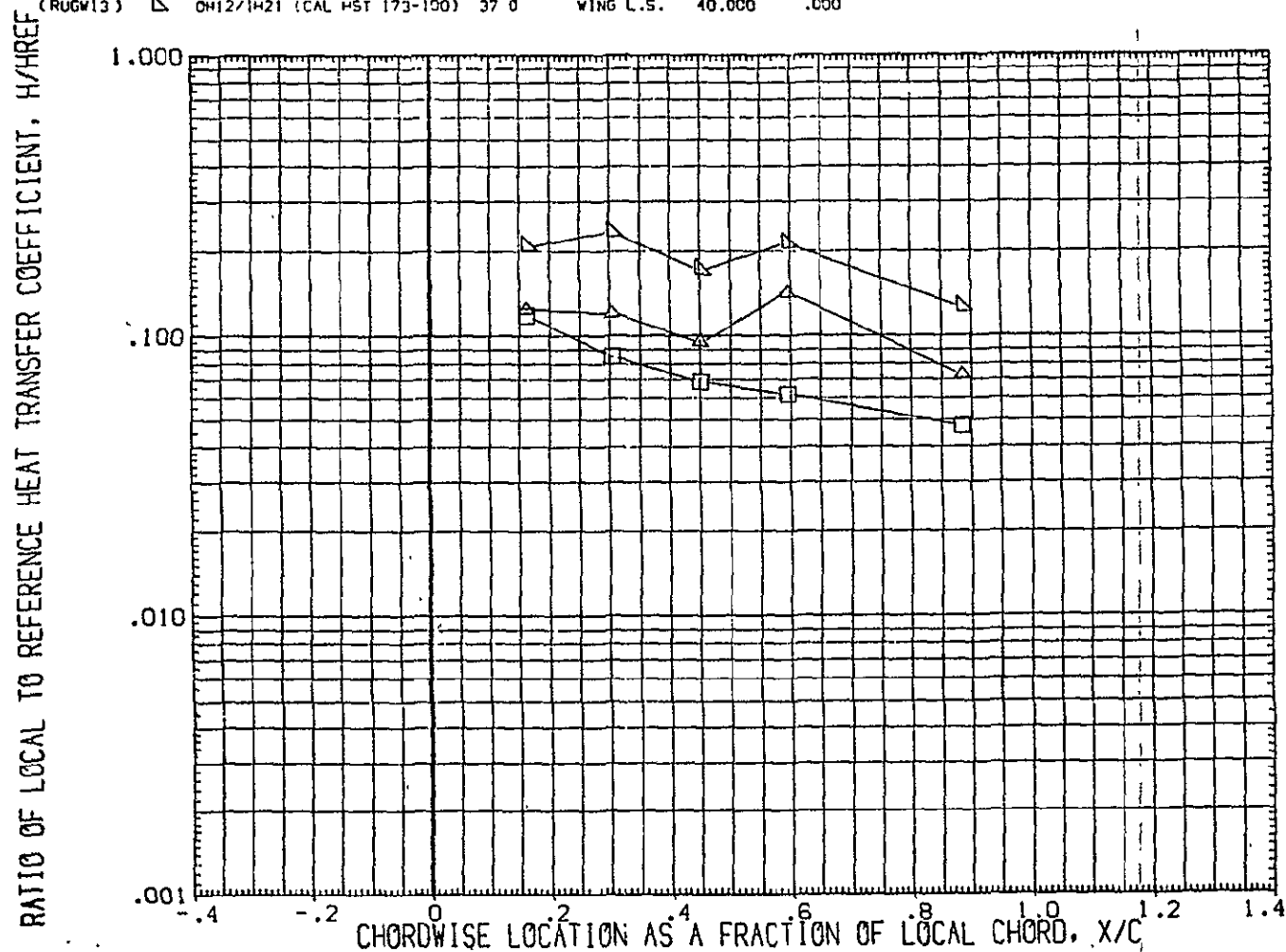


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 8.010 HAW/HT = .900 $2Y/B$ = .250 PAGE 646

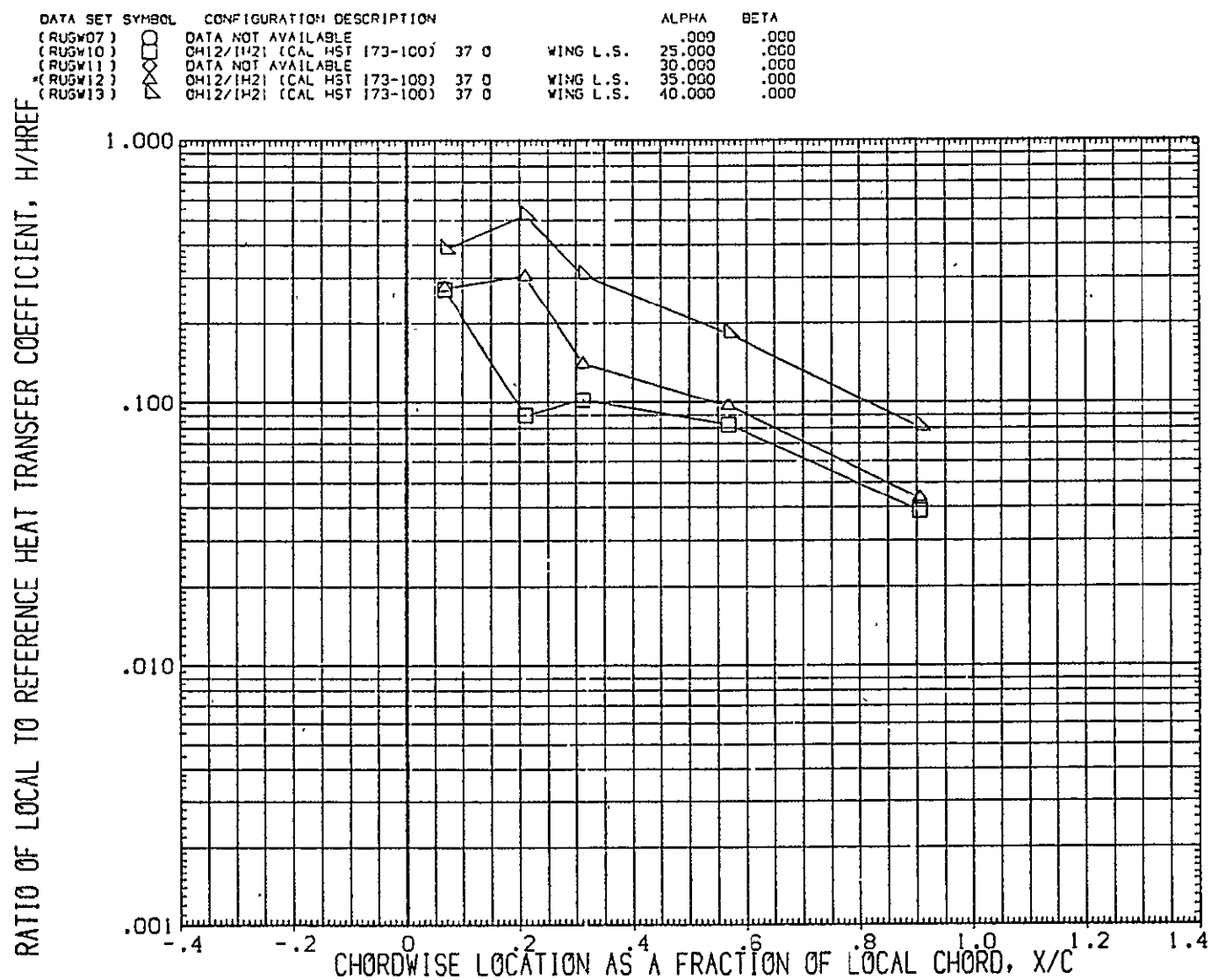


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT= .900 2Y/B = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	DATA NOT AVAILABLE	30.000	.000
(RUGW12)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

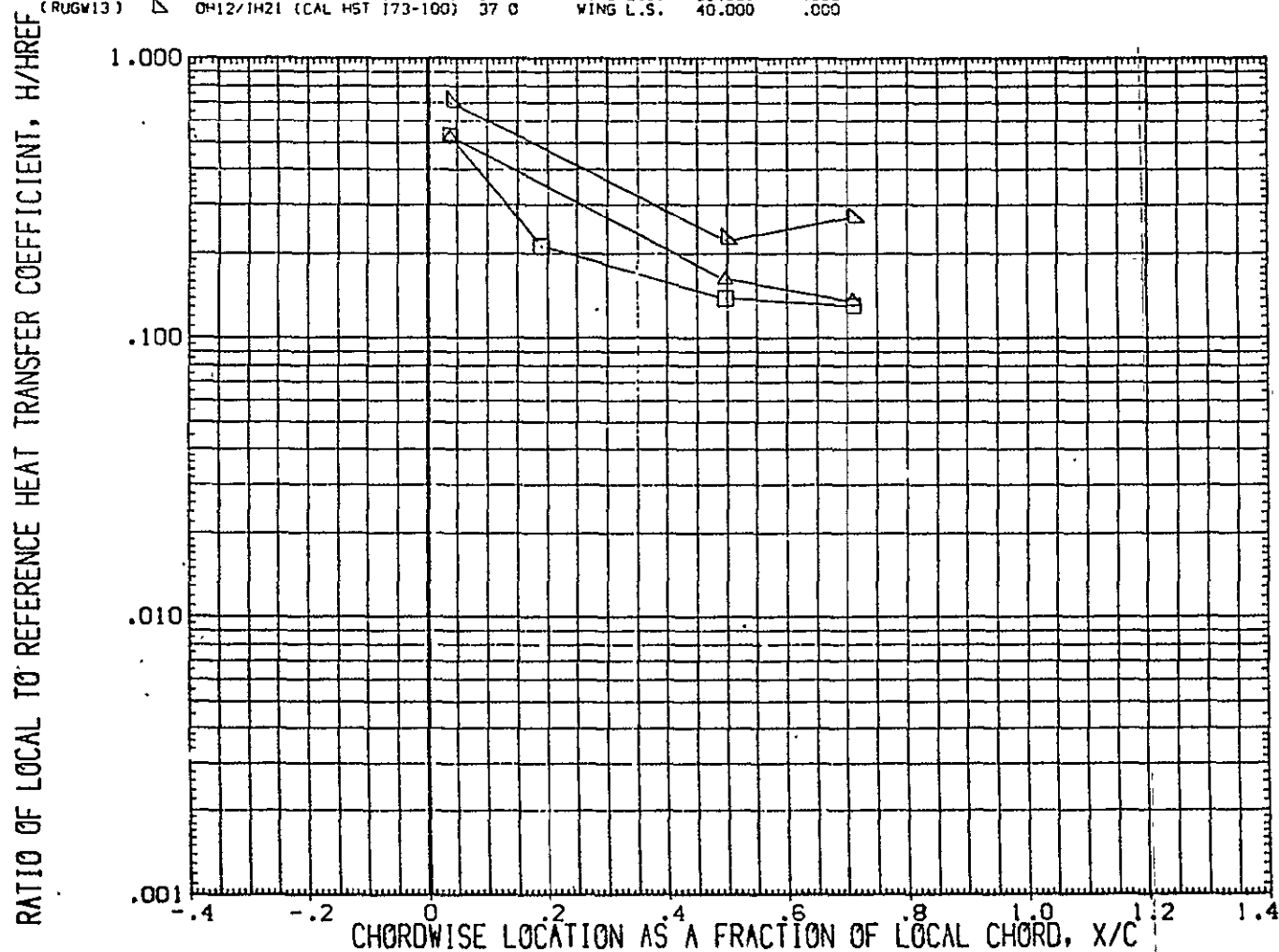


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER, $RN/L1$

MACH = 8.010 HAW/HT = .900 $2Y/B$ = .500

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)		DATA NOT AVAILABLE	.000	.000
(RUGW10)		OH12/IH21 (CAL HST 173-100) 37 0	WING L.S.	25.000
(RUGW11)		DATA NOT AVAILABLE	30.000	.000
(RUGW12)		OH12/IH21 (CAL HST 173-100) 37 0	WING L.S.	35.000
(RUGW13)		OH12/IH21 (CAL HST 173-100) 37 0	WING L.S.	40.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

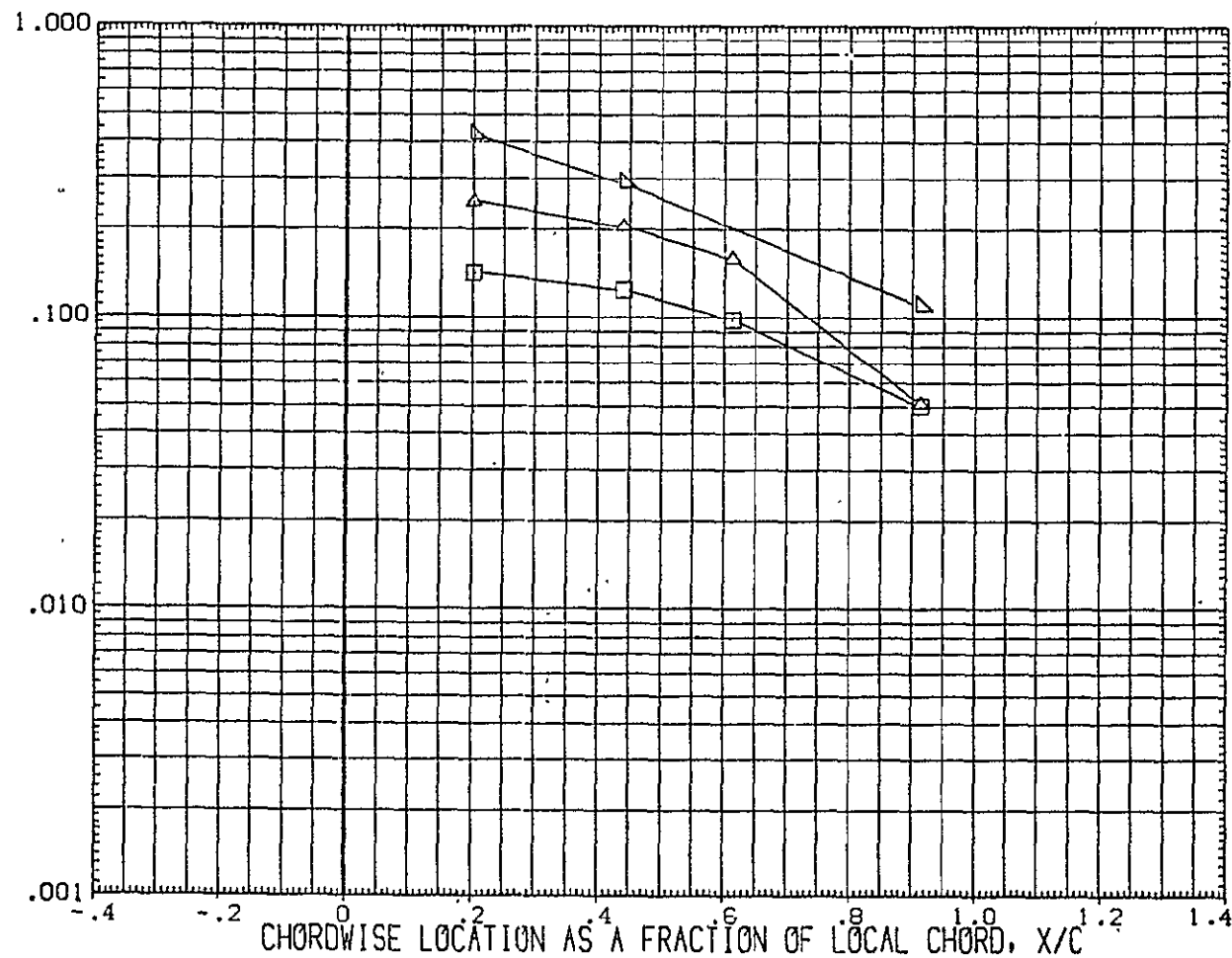


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = .900 2Y/B = .600

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.039
(RUGV11)	DATA NOT AVAILABLE	30.000	.000
(RUGV12)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGV13)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

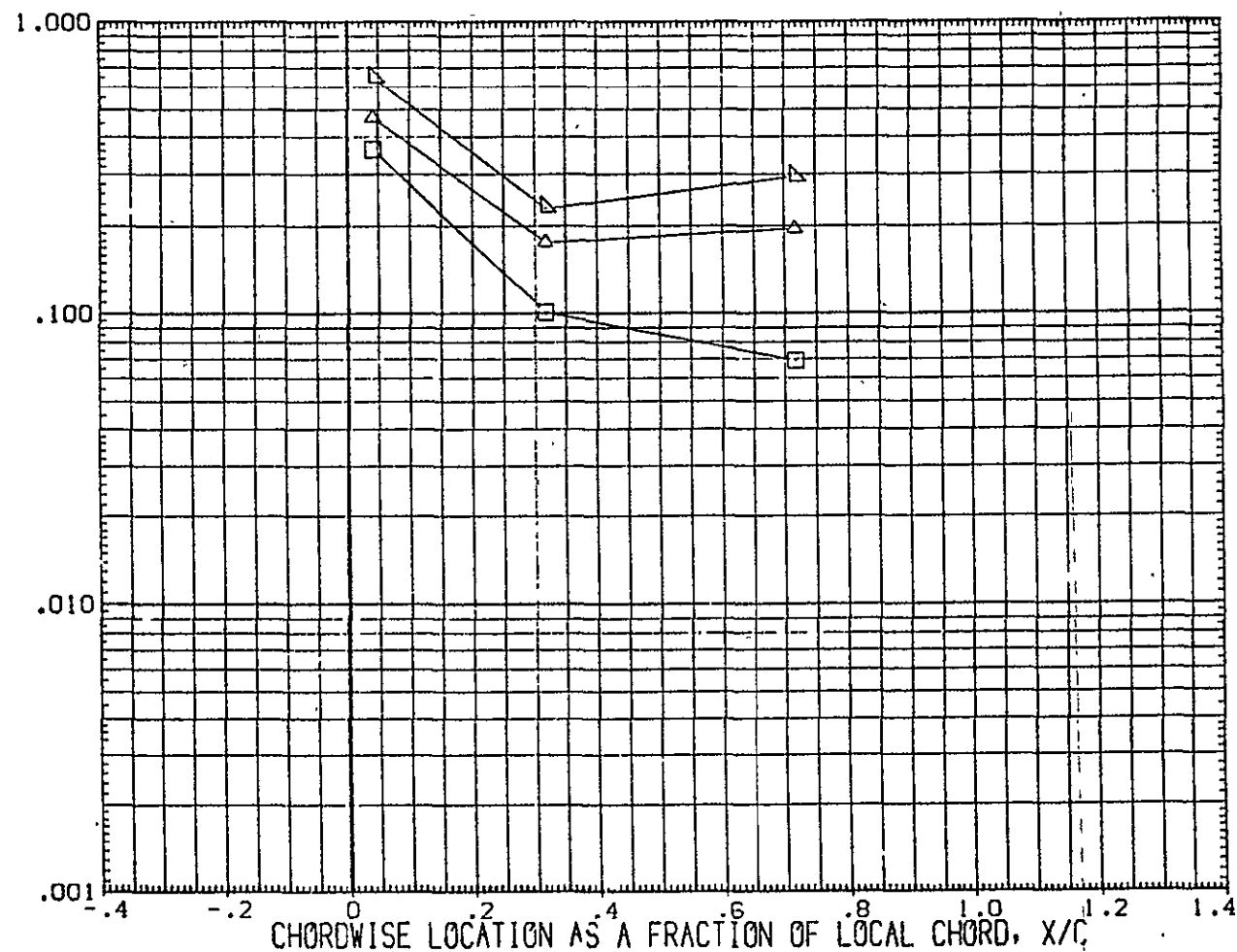


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = .900 $2Y/B$ = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	DATA NOT AVAILABLE	30.000	.000
(RUGW12)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.030

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

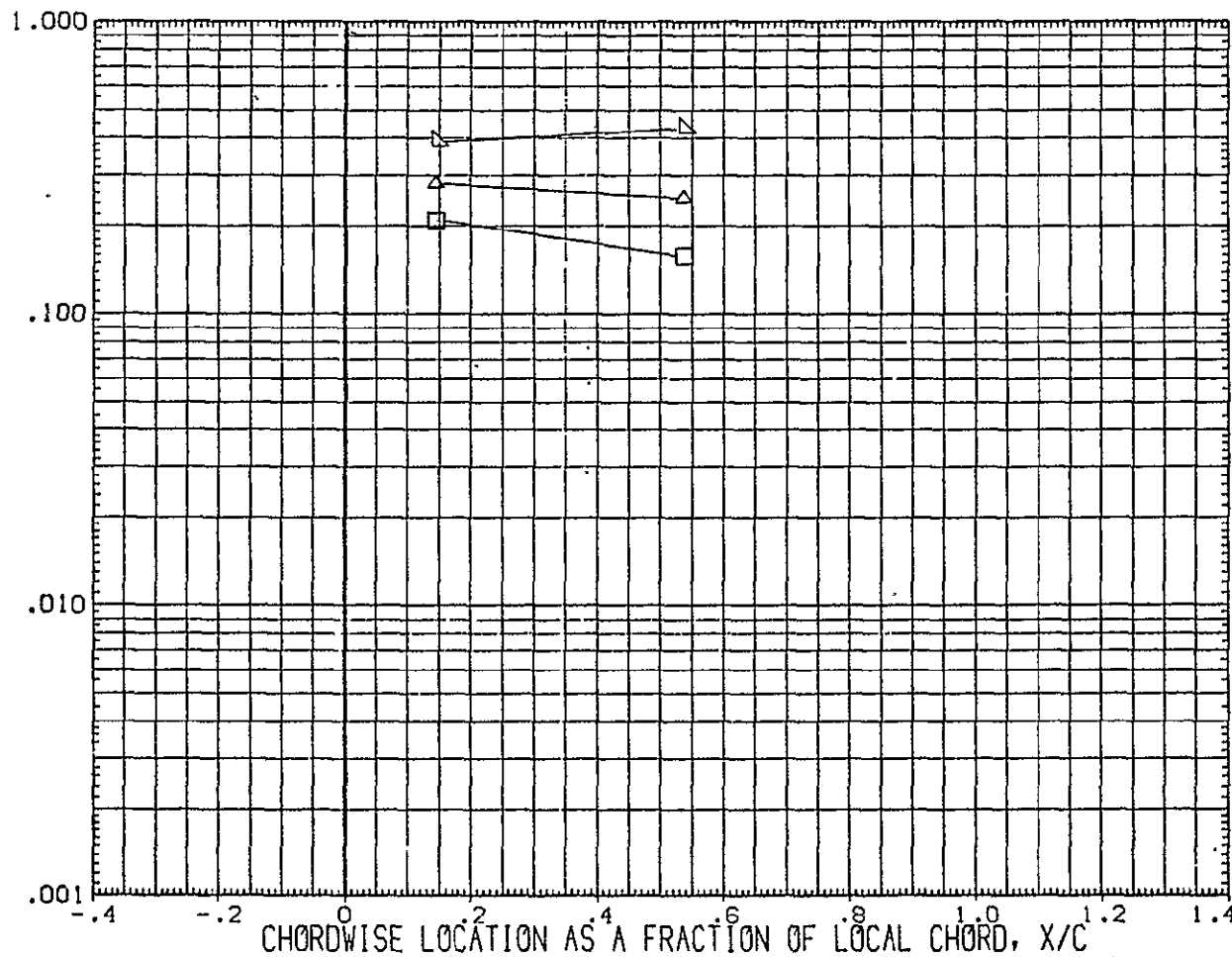


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = .900 $2Y/B$ = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE		
(RUGV10)	CH12/1421 (CAL HST 173-109) 37 0 WING L.S.	25.000	.000
(RUGV11)	DATA NOT AVAILABLE		
(RUGV12)	CH12/1421 (CAL HST 173-109) 37 0 WING L.S.	30.000	.000
(RUGV13)	CH12/1421 (CAL HST 173-109) 37 0 WING L.S.	35.000	.000
		40.000	.000

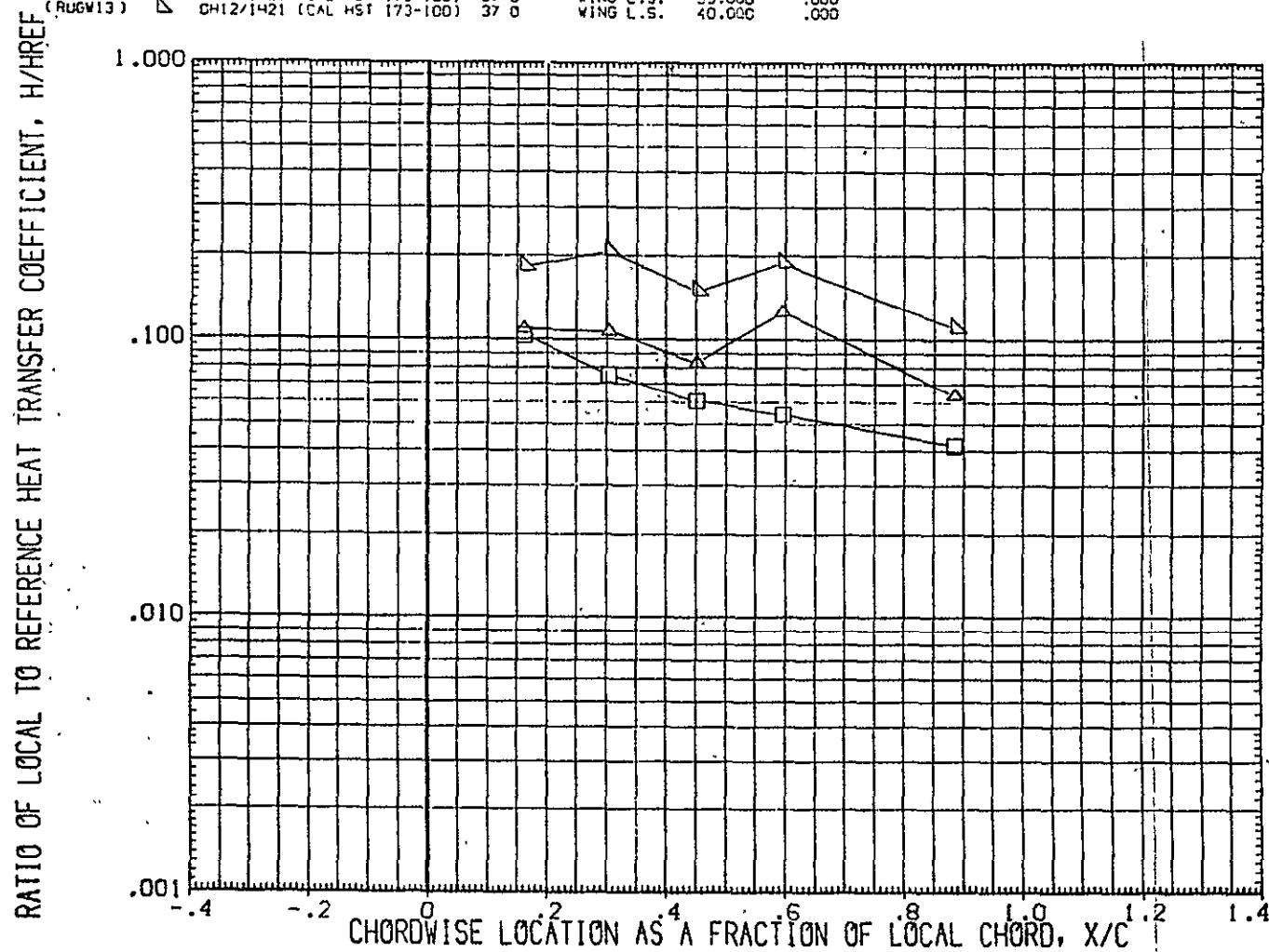


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/LI

MACH = 8.010 HAW/HT = 1.000 $2Y/B$ = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	DATA NOT AVAILABLE	30.000	.000
(RUGW12)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

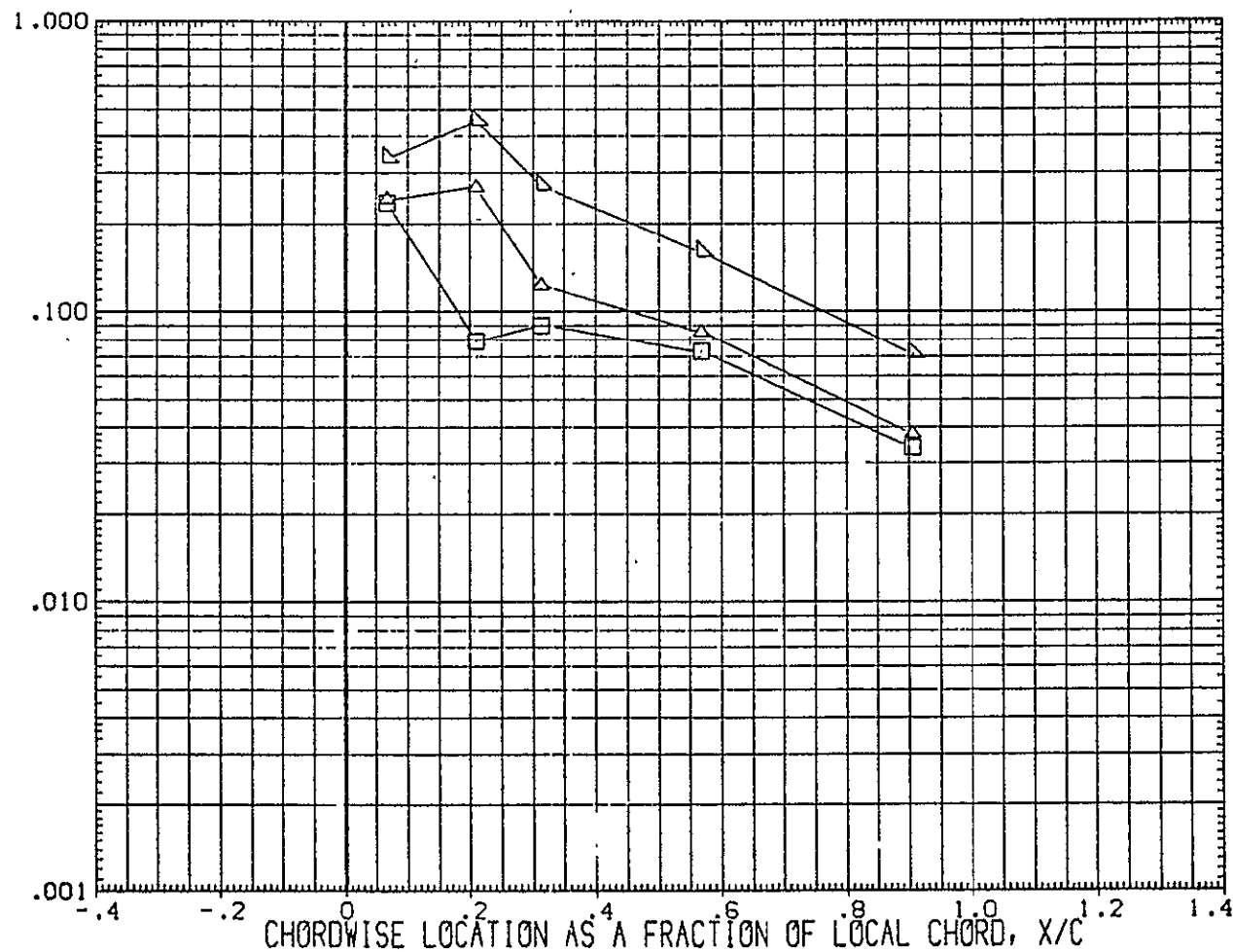


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = 1.000 2Y/B = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	DATA NOT AVAILABLE	30.000	.000
(RUGW12)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

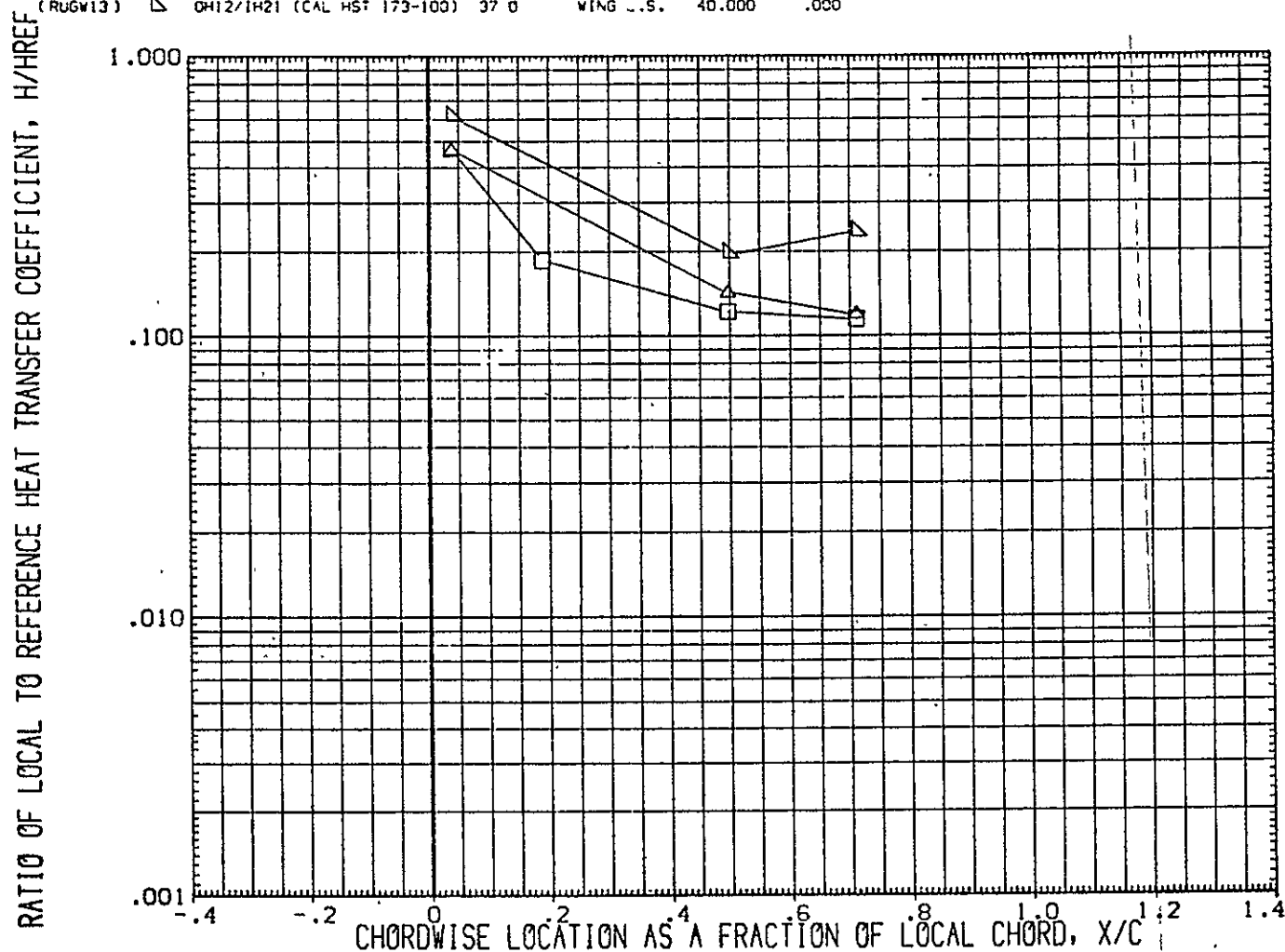


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = 1.000 $2Y/B$ = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING I.S.	25.000	.000
(RUGW11)	DATA NOT AVAILABLE	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING I.S.	35.000	.000
(RUGW13)	OH12/1H21 (CAL HST 173-100) 37 0 WING I.S.	40.000	.000

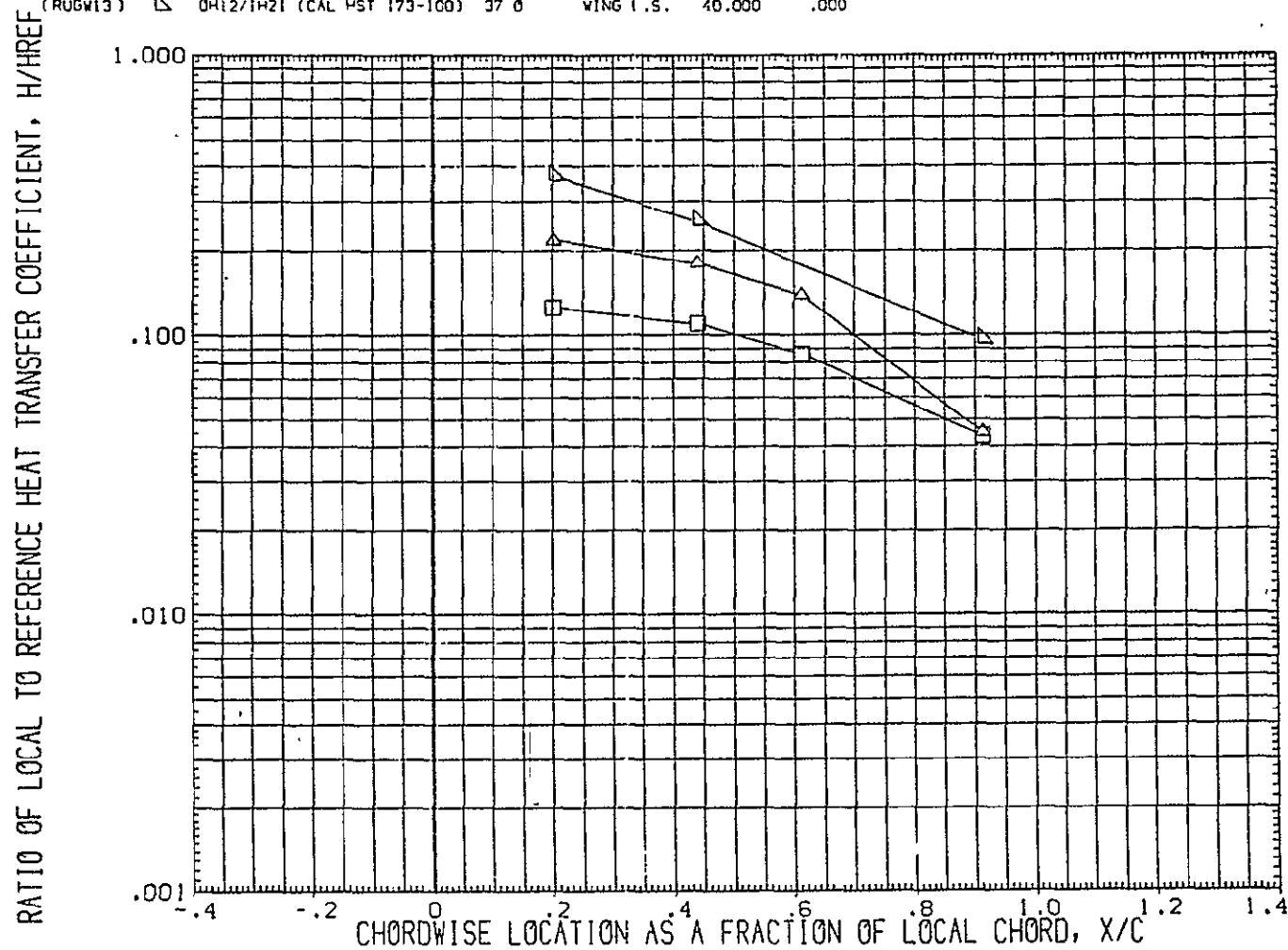


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = 1.000 $2Y/B = .600$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 C WING L.S.	25.000	.000
(RUGW11)	DATA NOT AVAILABLE	30.000	.000
(RUGW12)	CH12/1H21 (CAL HST 173-100) 37 C WING L.S.	35.000	.000
(RUGW13)	CH12/1H21 (CAL HST 173-100) 37 C WING L.S.	40.000	.000

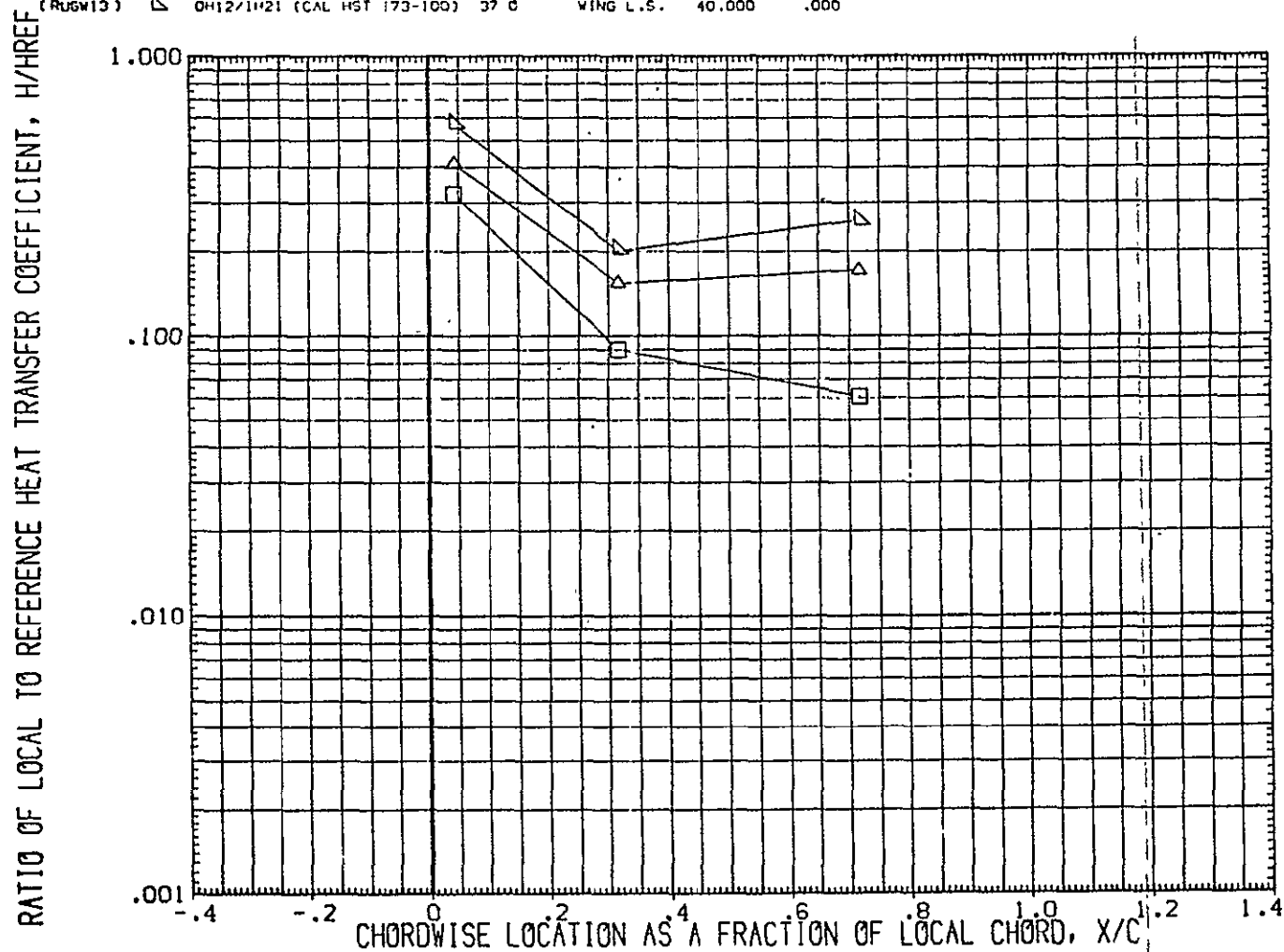


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = 1.000 $2Y/B = .750$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	DATA NOT AVAILABLE	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

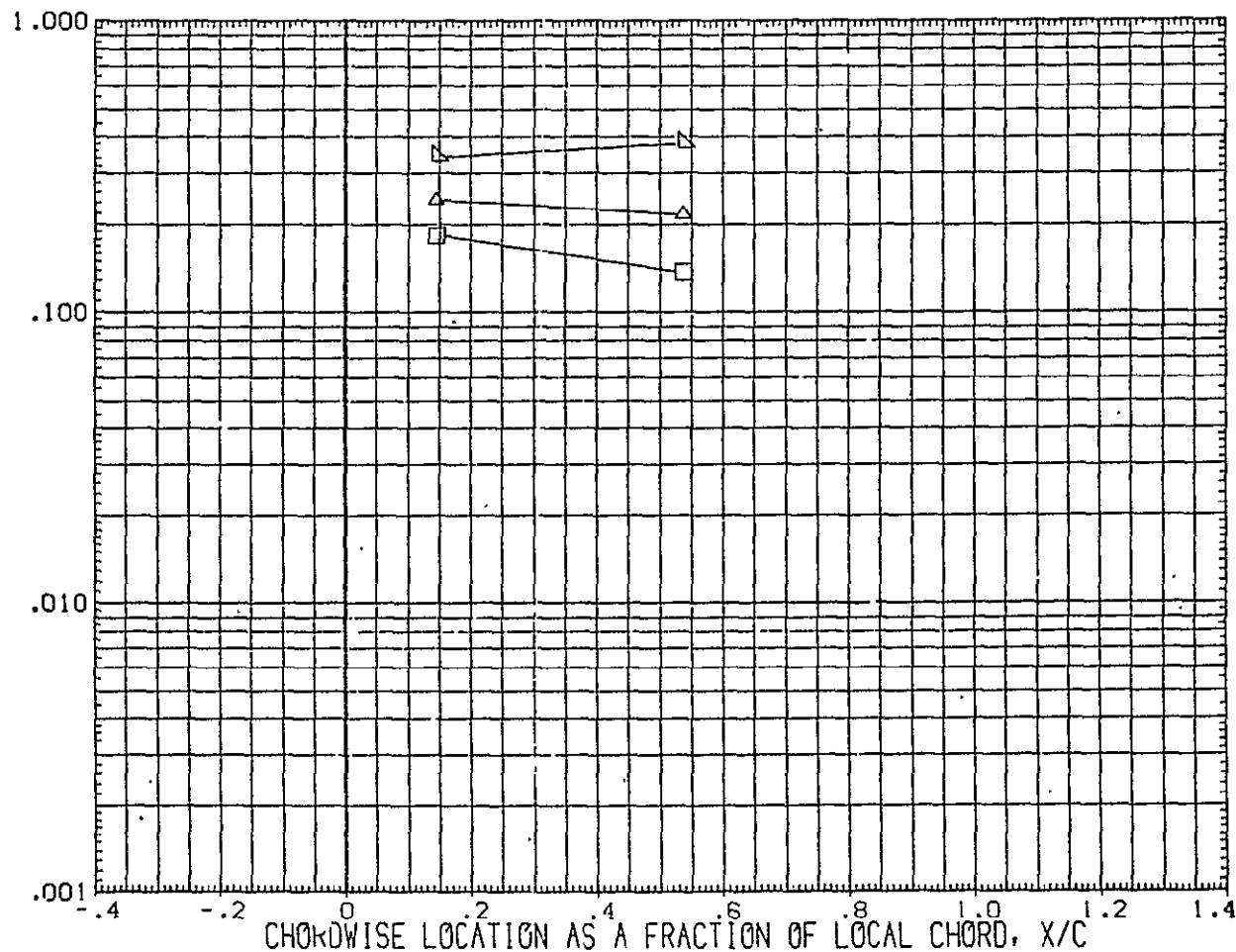


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 8.010 $HAW/HT = 1.000$ $2Y/B = .950$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OW12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OW12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OW12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

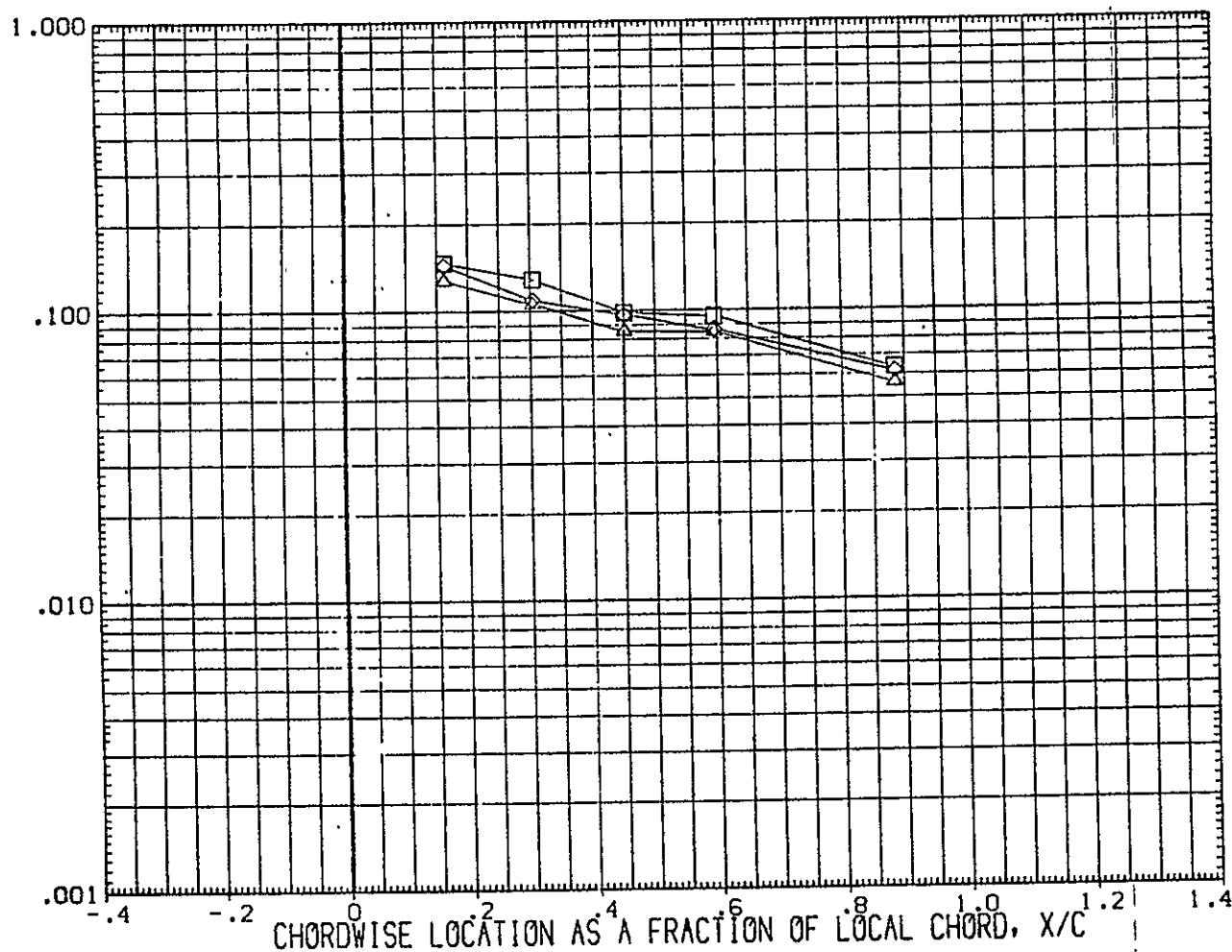


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 10.500 HAW/HT = .850 $2Y/B$ = .250

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE		
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW13)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

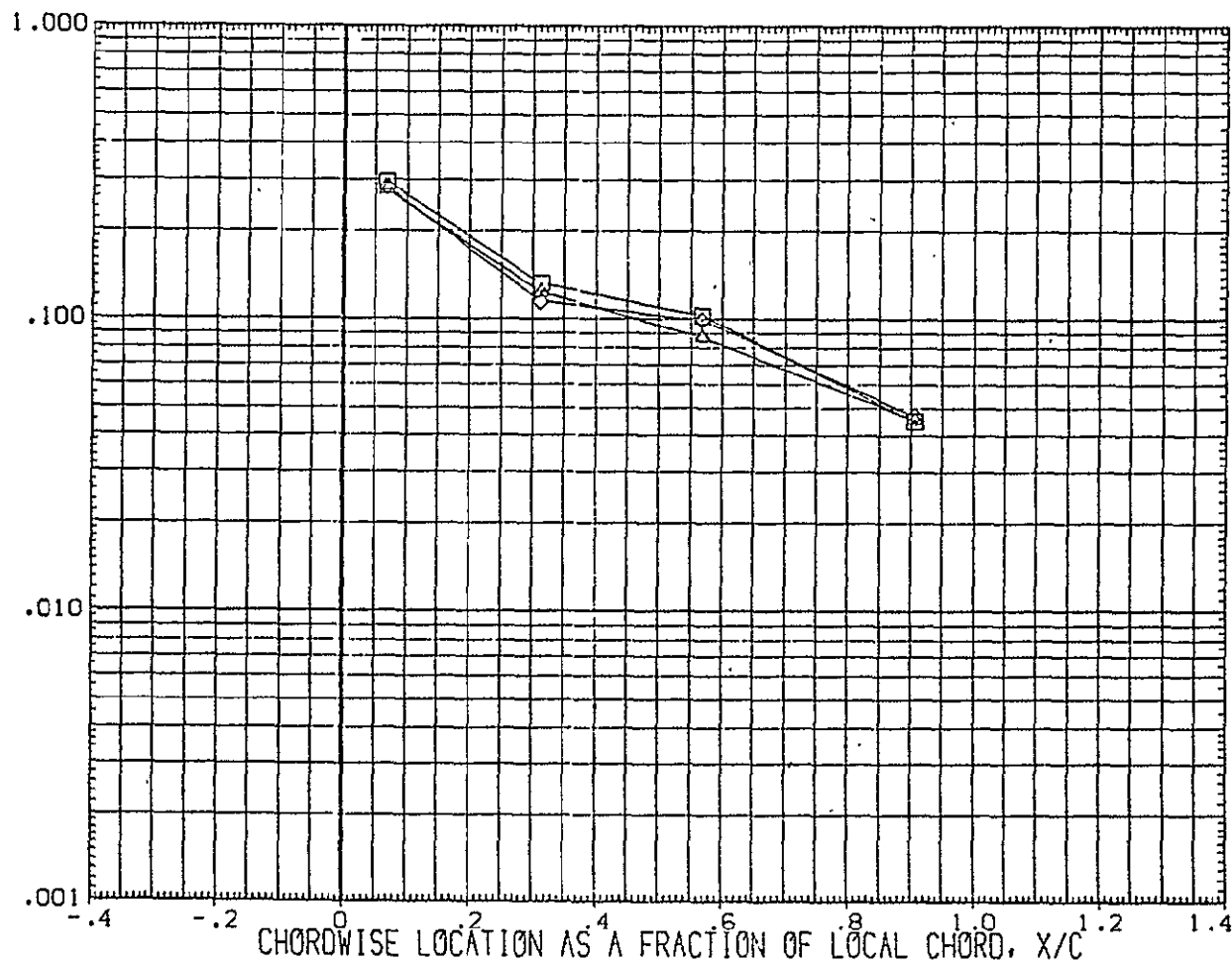


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/HT = .850 $2Y/B$ = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUG#07)	DATA NOT AVAILABLE		
(RUG#10)	OW12/1421 (CAL HST 173-100) 37 0	25.000	.000
(RUG#11)	OW12/1421 (CAL HST 173-100) 37 0	30.000	.000
(RUG#12)	OW12/1421 (CAL HST 173-100) 37 0	35.000	.000
(RUG#13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

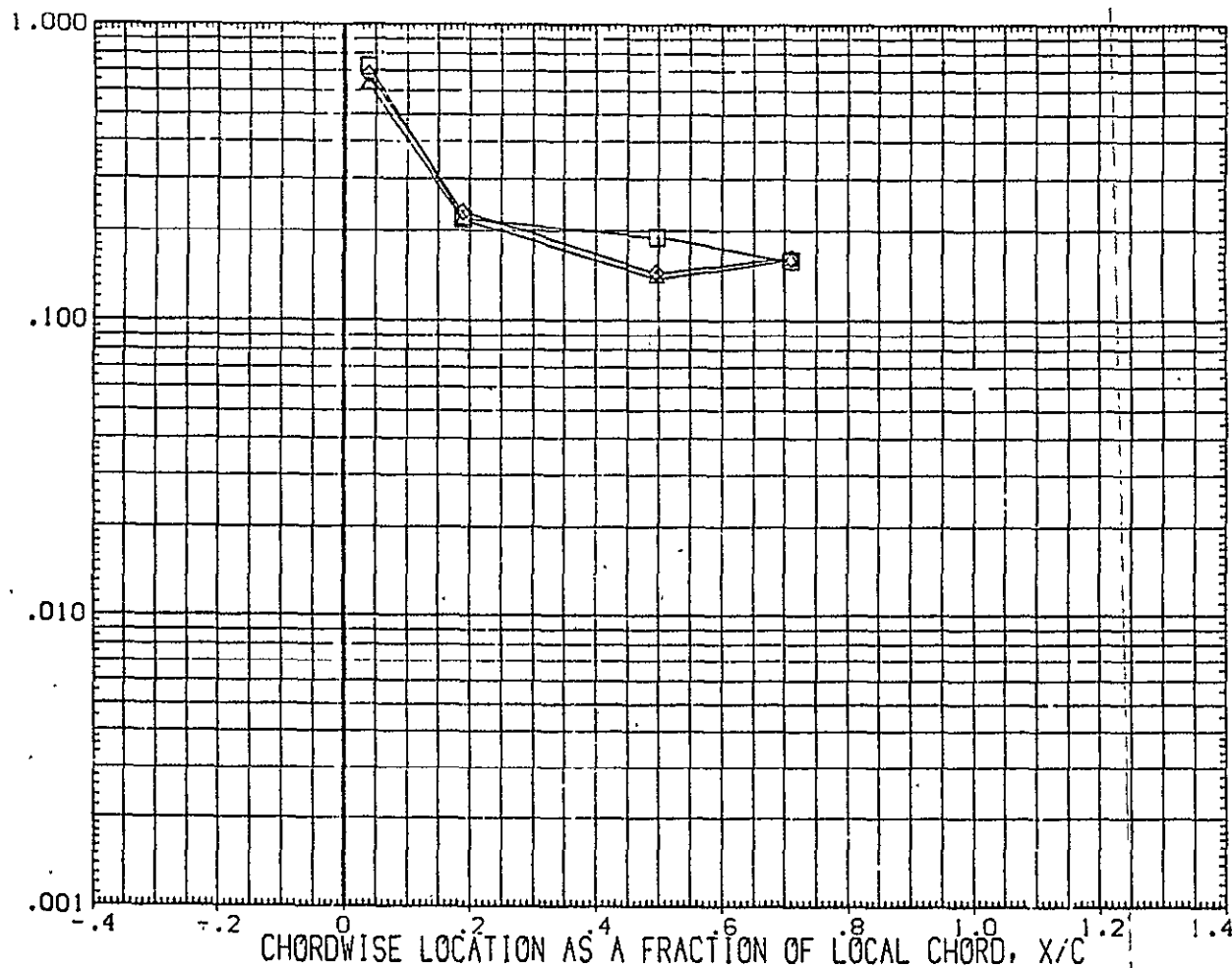


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 10.500 HAW/HT = .850 $2Y/B$ = .500

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

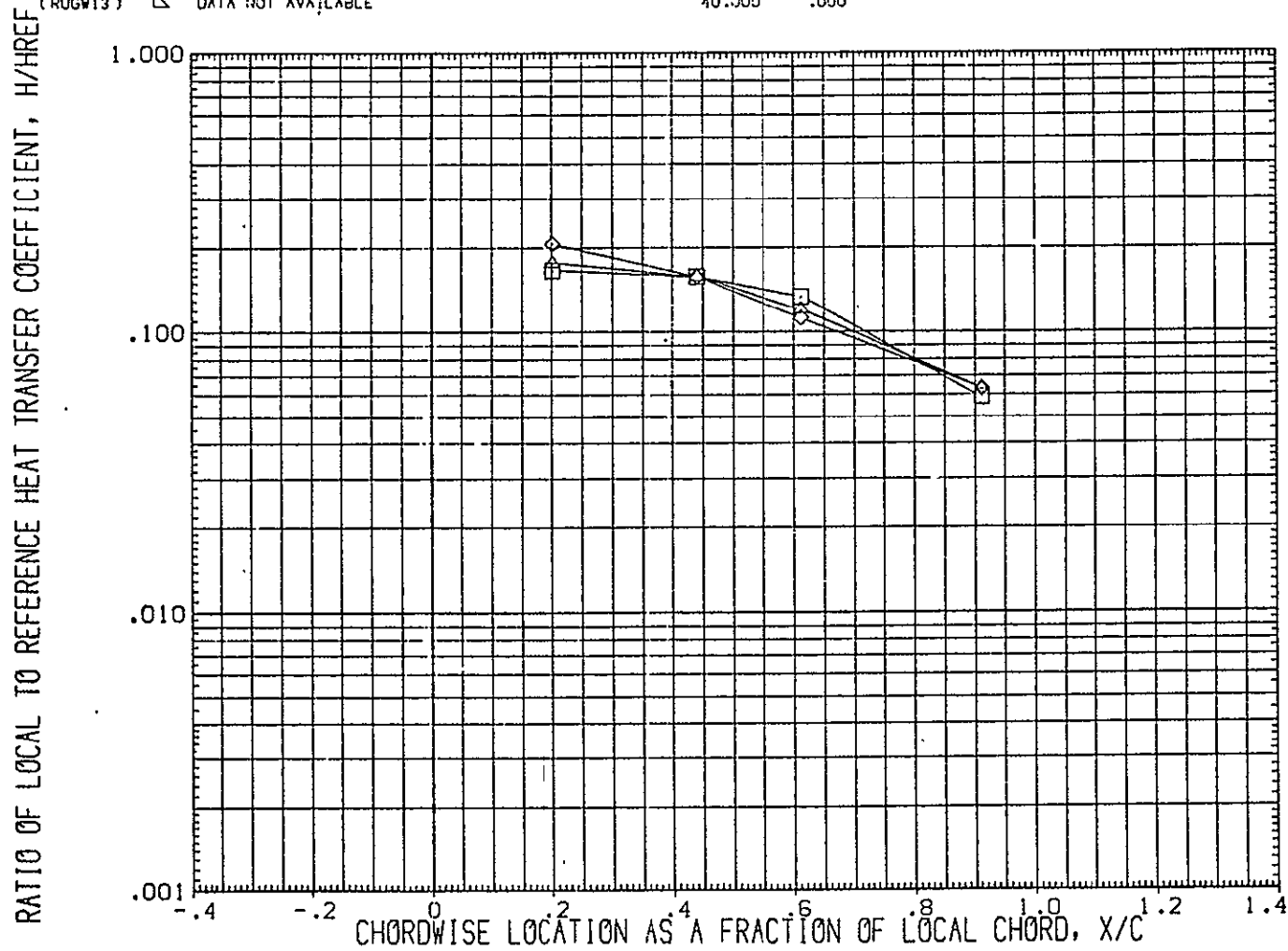


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/HT = .850 $2Y/B$ = .600

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

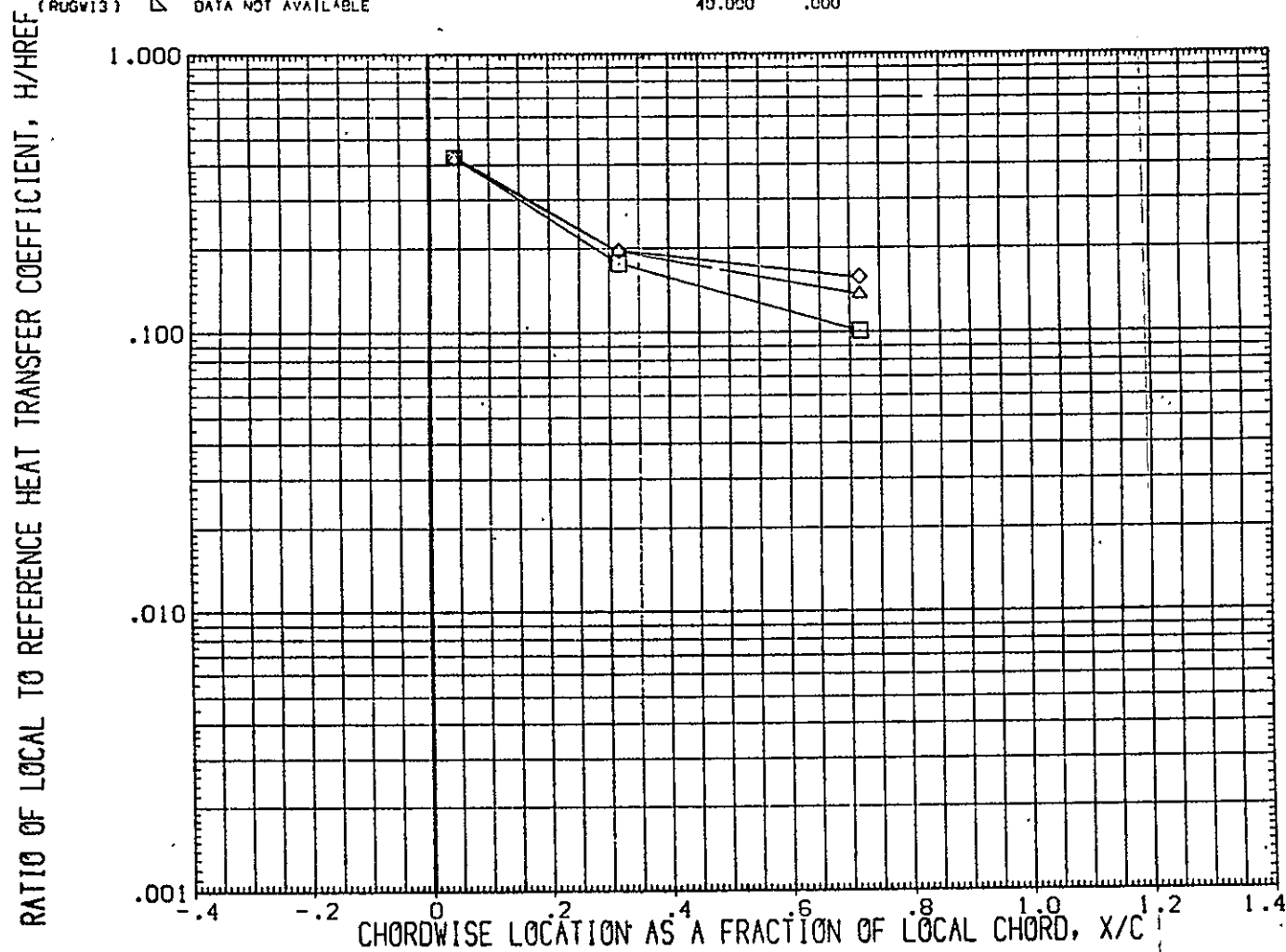


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/HT = .850 $2Y/B$ = .750

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV11)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV12)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

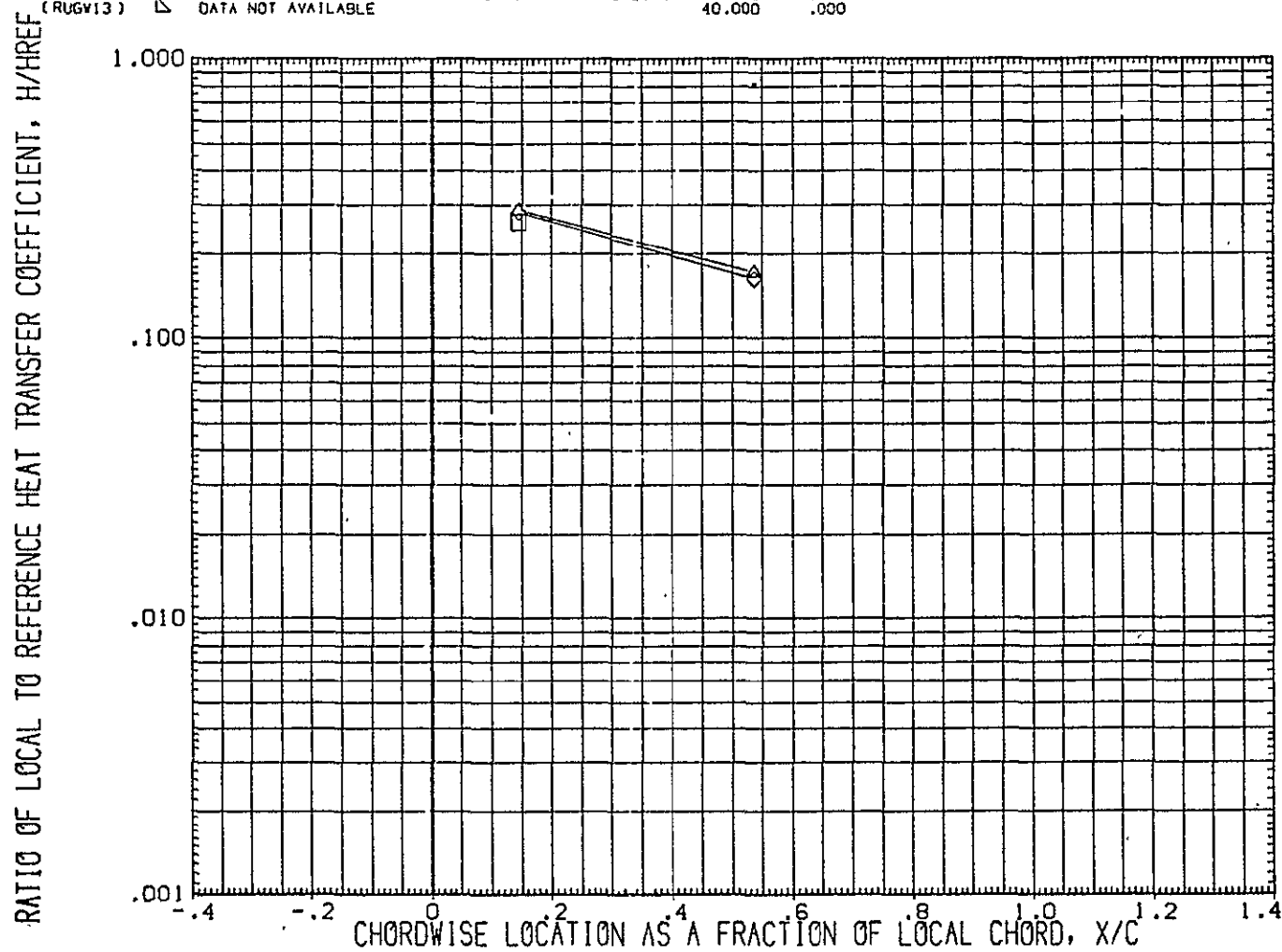


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L1

MACH = 10.500 HAW/HT= .850 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

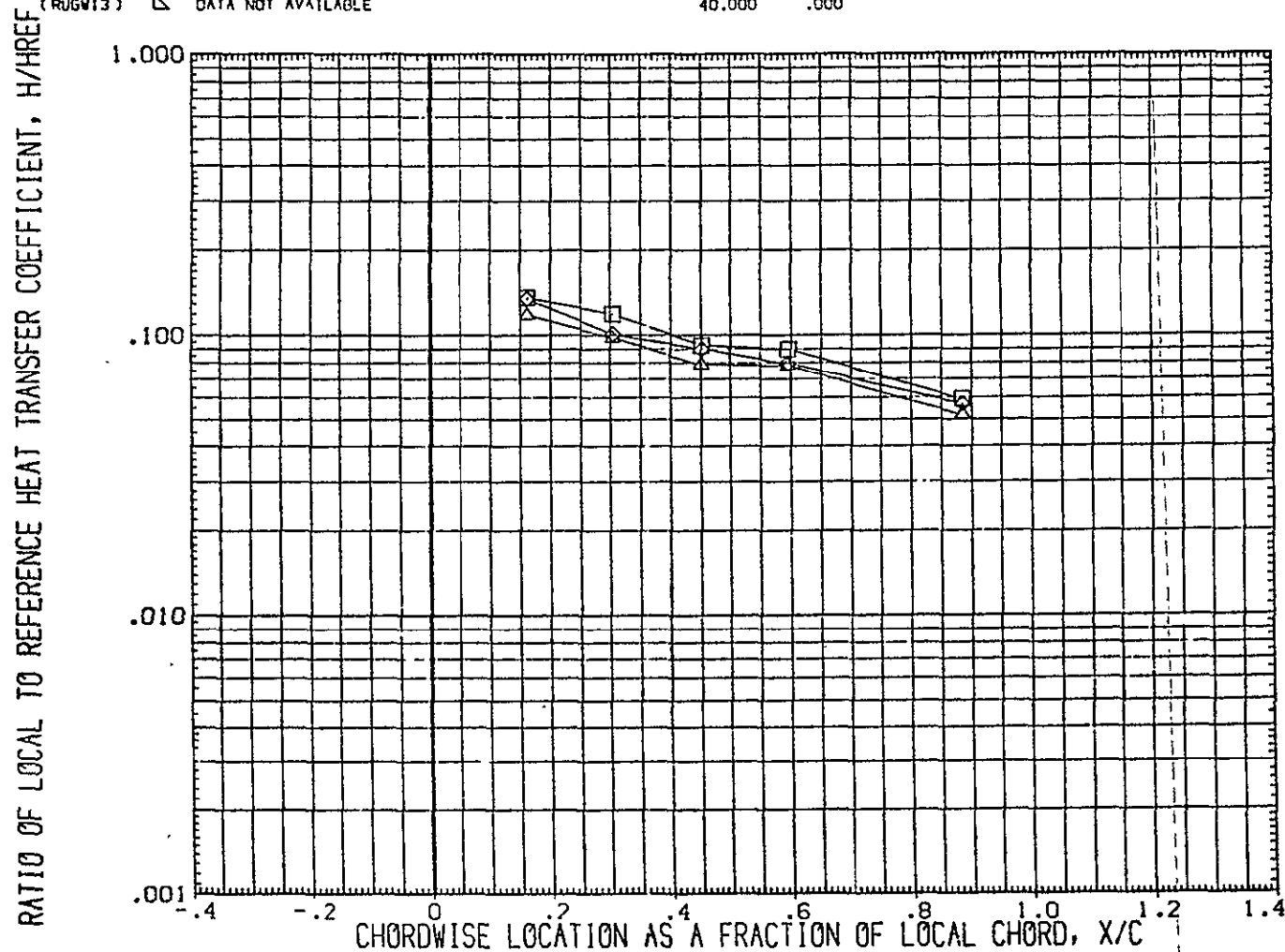


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/HT = .900 $2Y/B \approx .250$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

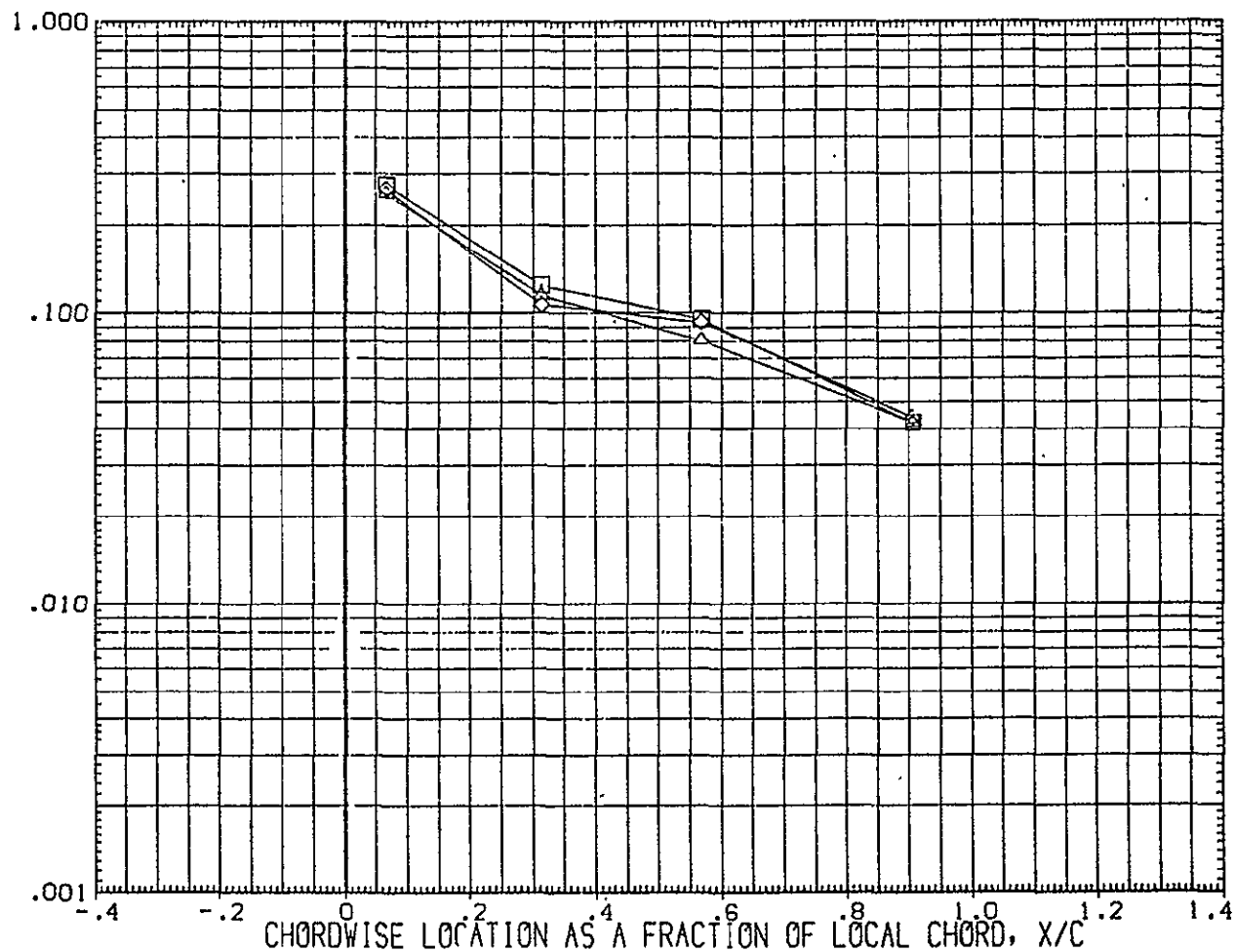


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/HT = .900 2Y/B = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

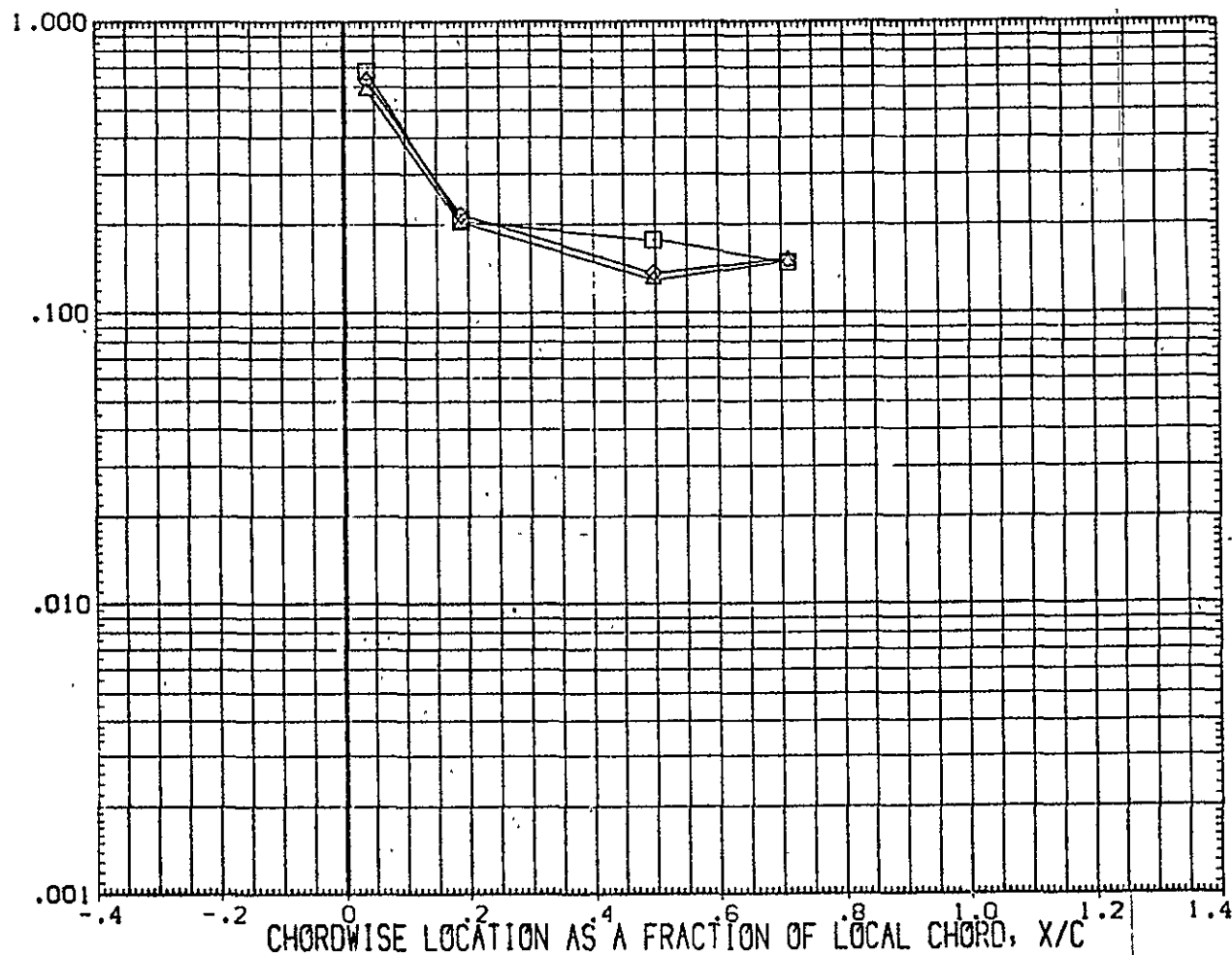


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/HT = .900 2Y/B = .500

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
RUGW07	DATA NOT AVAILABLE	.000	.000
RUGW10	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000
RUGW11	OH12/1H21 (CAL HST 173-100) 37 0	30.000	.000
RUGW12	OH12/1H21 (CAL HST 173-100) 37 0	35.000	.050
RUGW13	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

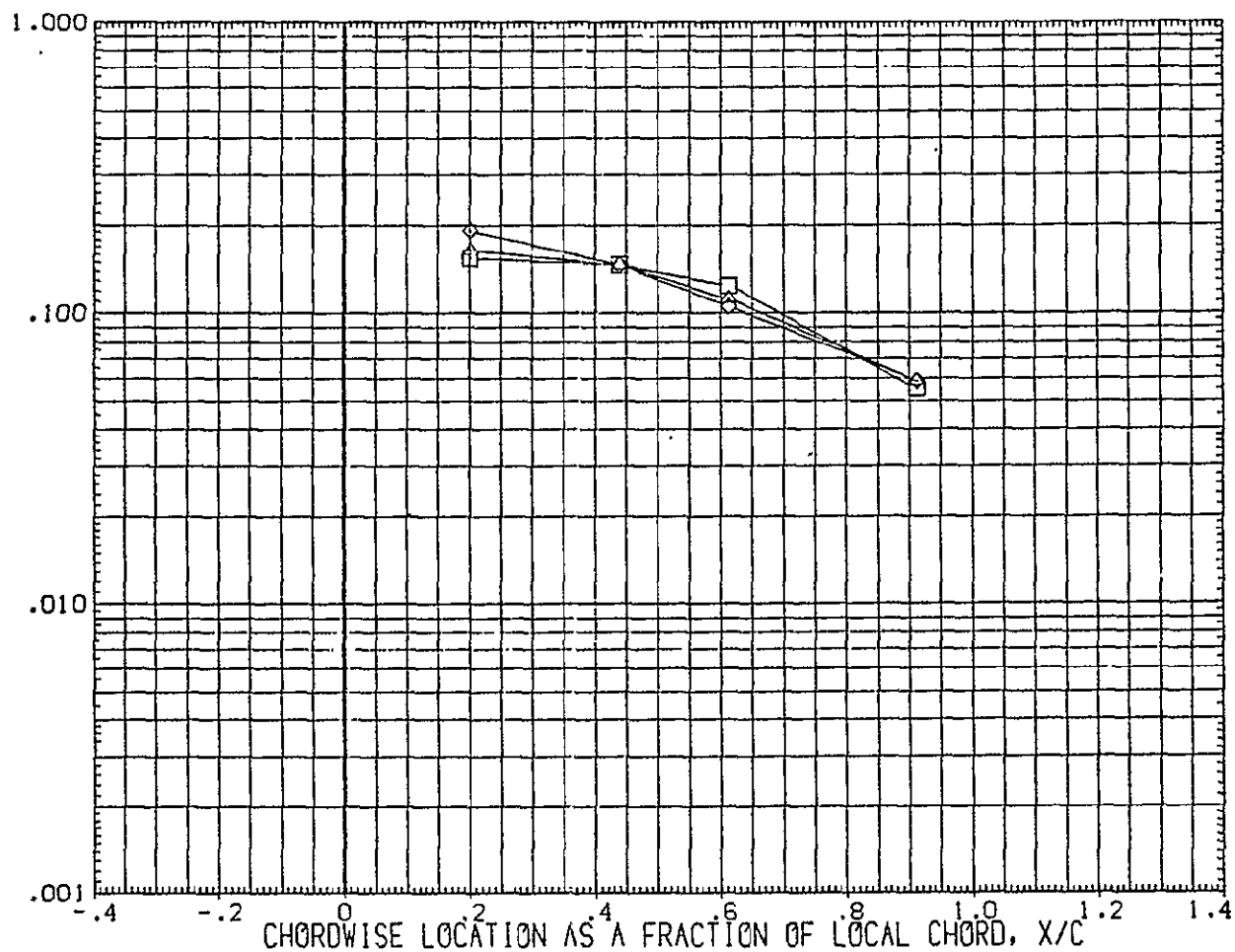


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/HT = .900 2Y/B = .600

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
[RUGW07]	DATA NOT AVAILABLE		
[RUGW10]	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
[RUGW11]	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
[RUGW12]	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
[RUGW13]	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

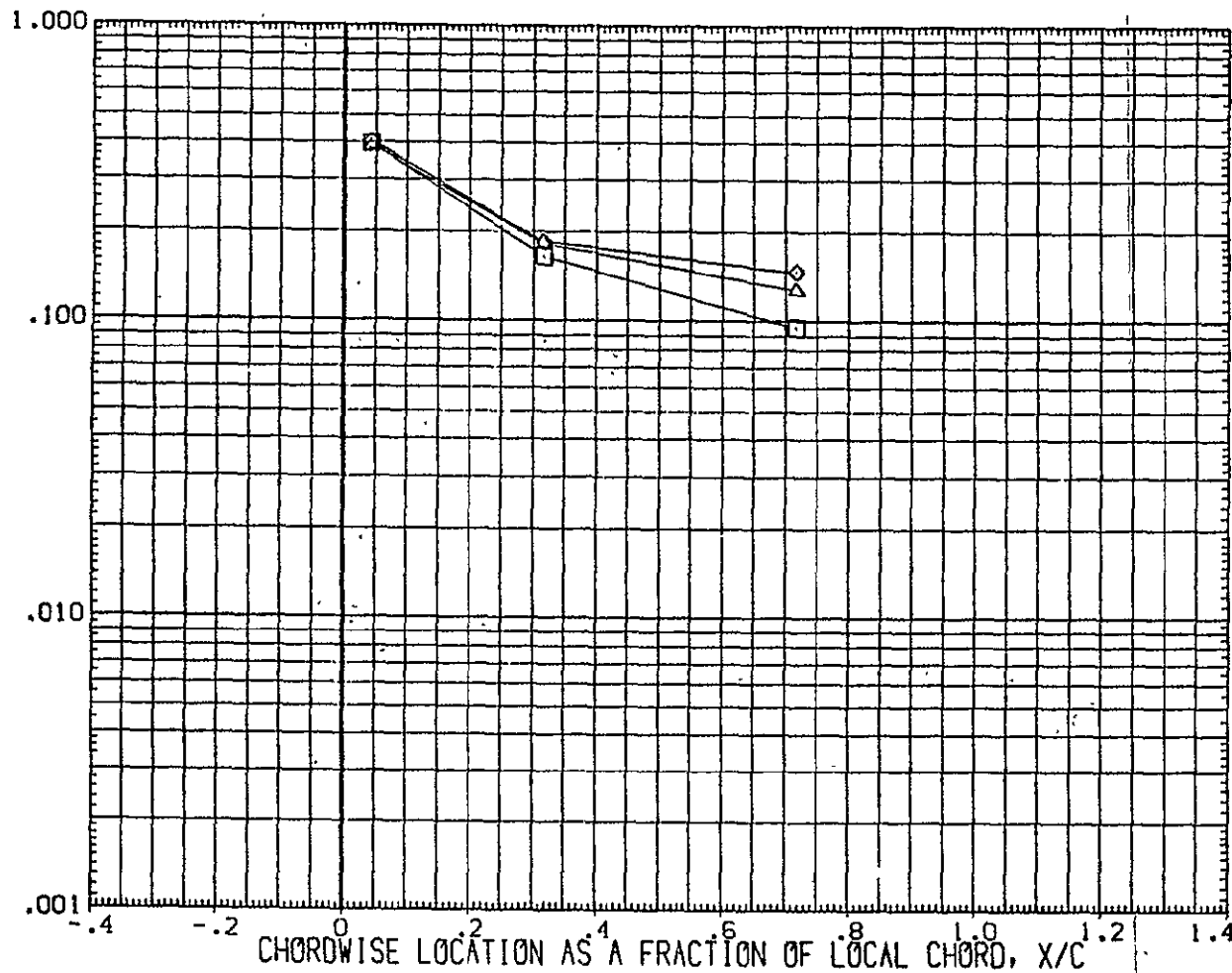
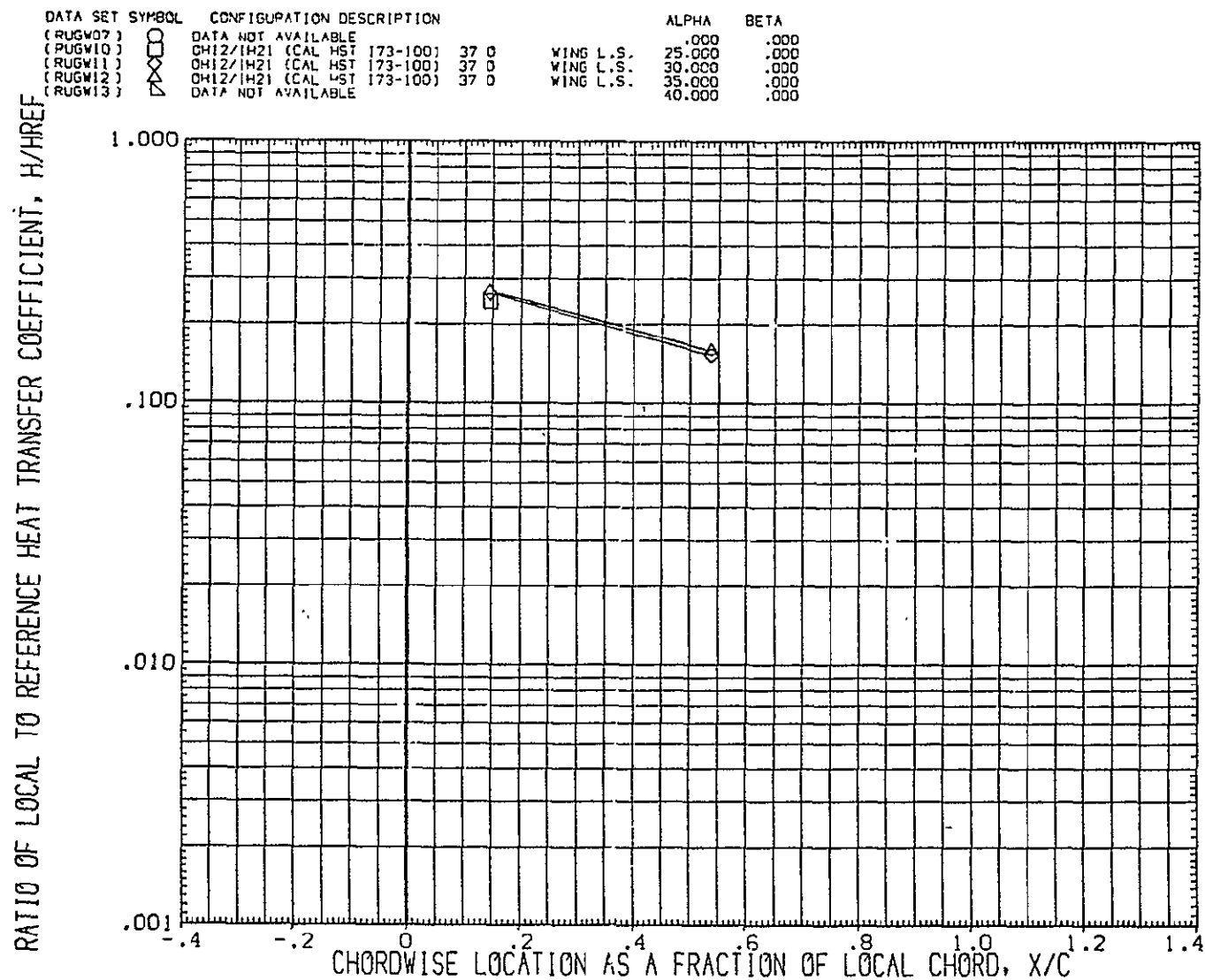


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/H1 = .900 2Y/B = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
{RUGW07}	DATA NOT AVAILABLE	.000	.000
{RUGW10}	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
{RUGW11}	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
{RUGW12}	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
{RUGW13}	DATA NOT AVAILABLE	40.000	.000

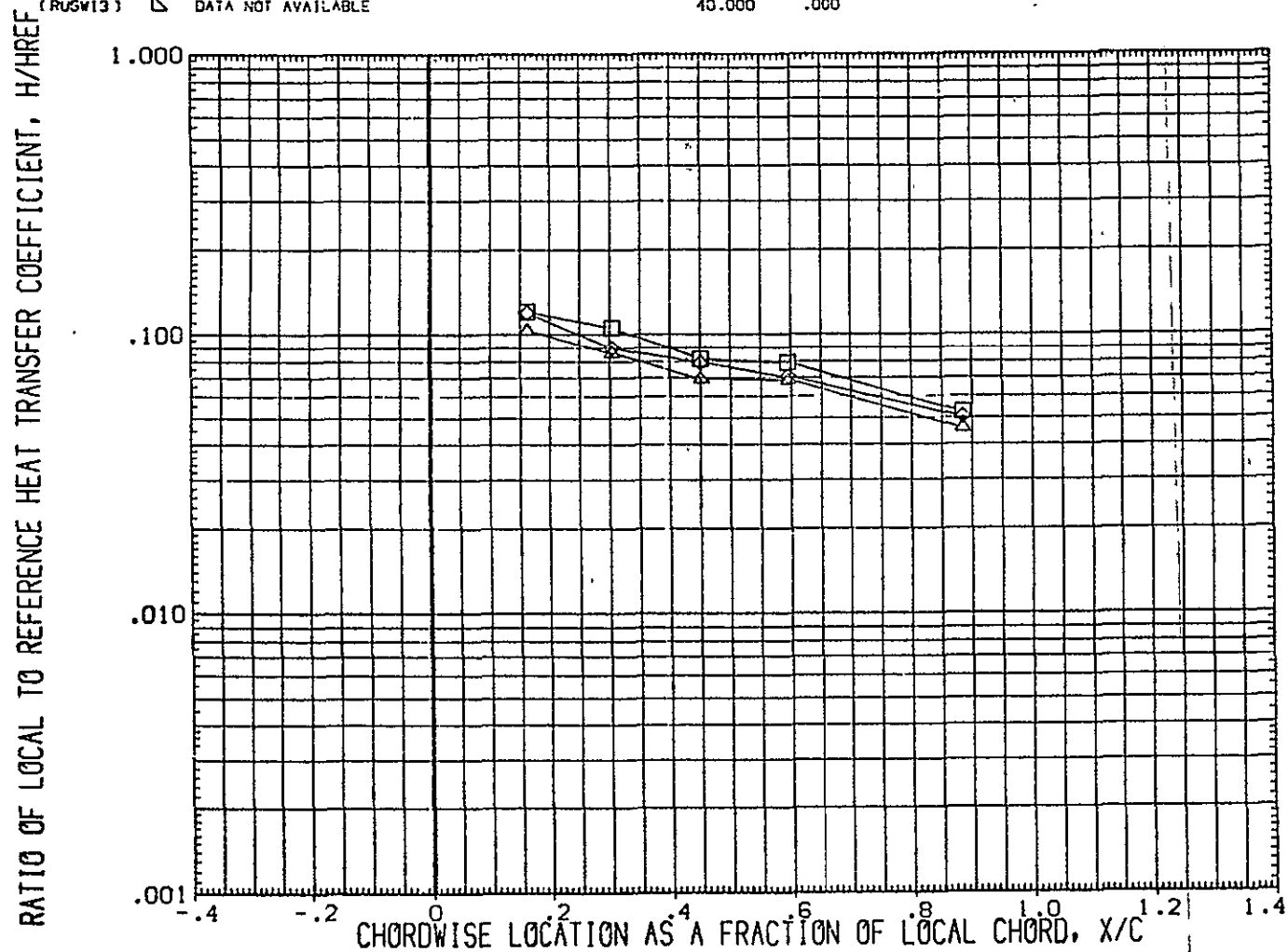


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 10.500 HAW/HT= 1.000 $2Y/B = .250$ PAGE 670

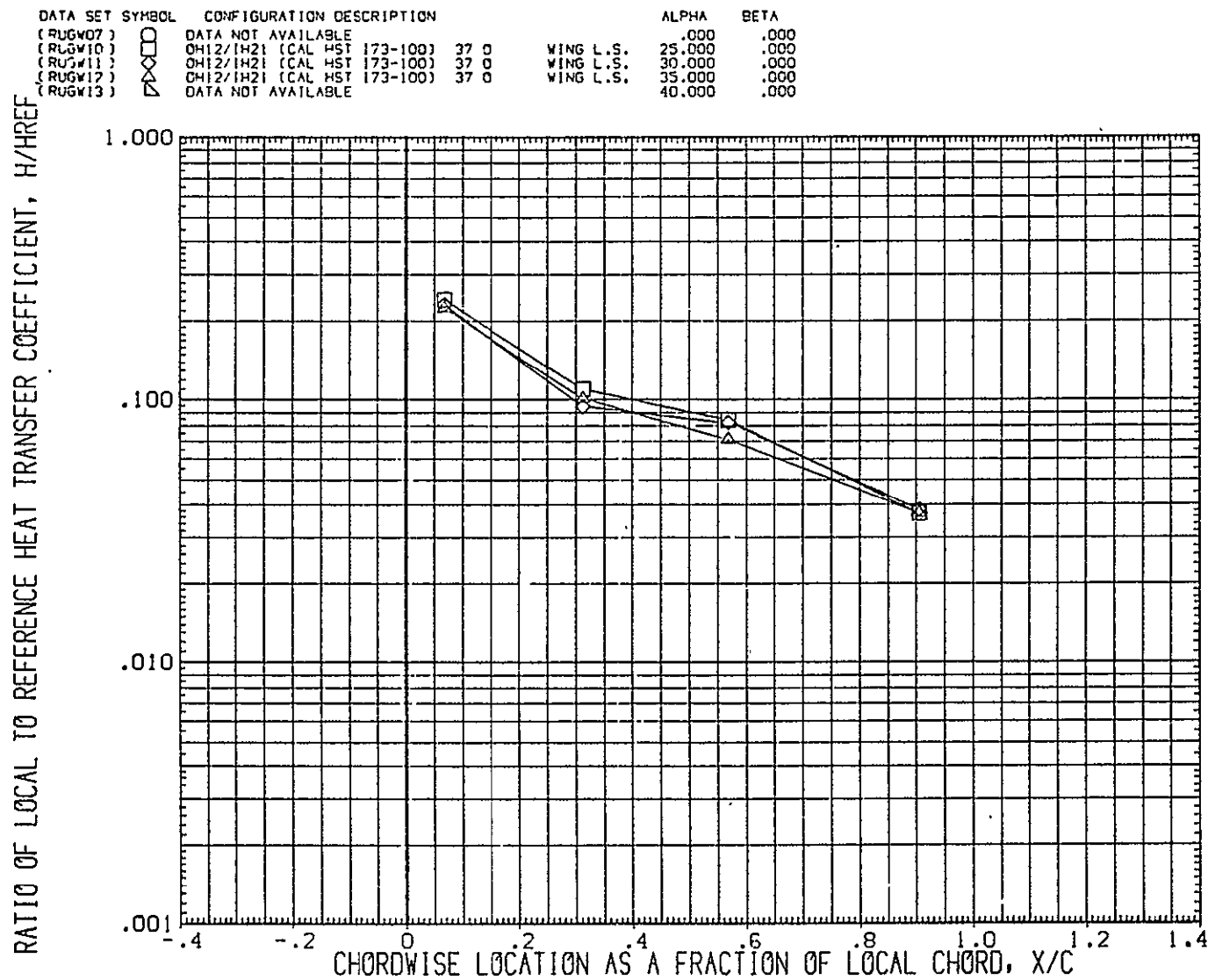


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L1
MACH = 10.500 HAW/HT= 1.000 2Y/B = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV11)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.030
(RUGV12)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.030
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

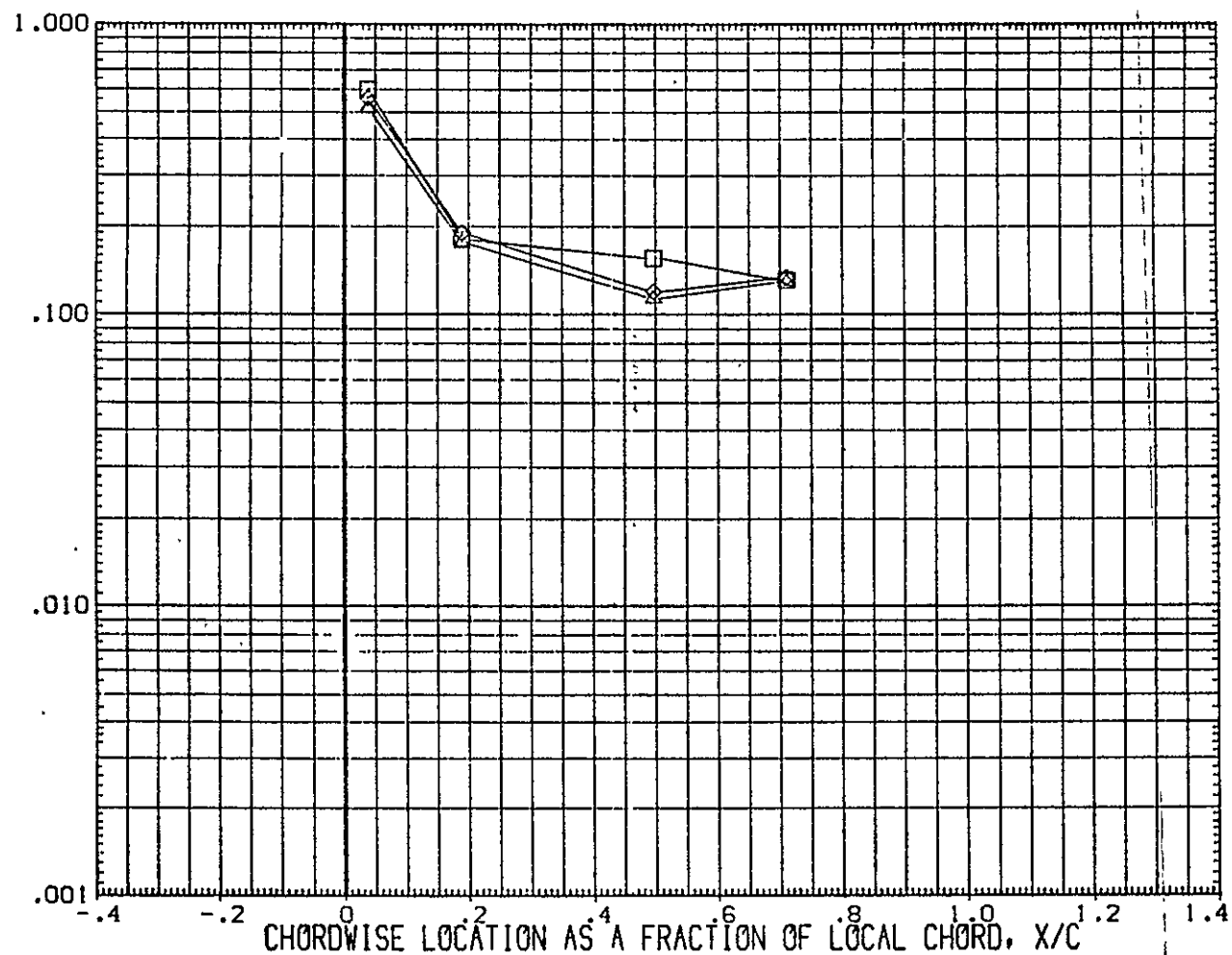


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/HT = 1.000 $2Y/B = .500$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 D WING L.S.	25.000	.000
(RUGW11)	CH12/1H21 (CAL HST 173-100) 37 D WING L.S.	30.000	.000
(RUGW12)	CH12/1H21 (CAL HST 173-100) 37 D WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

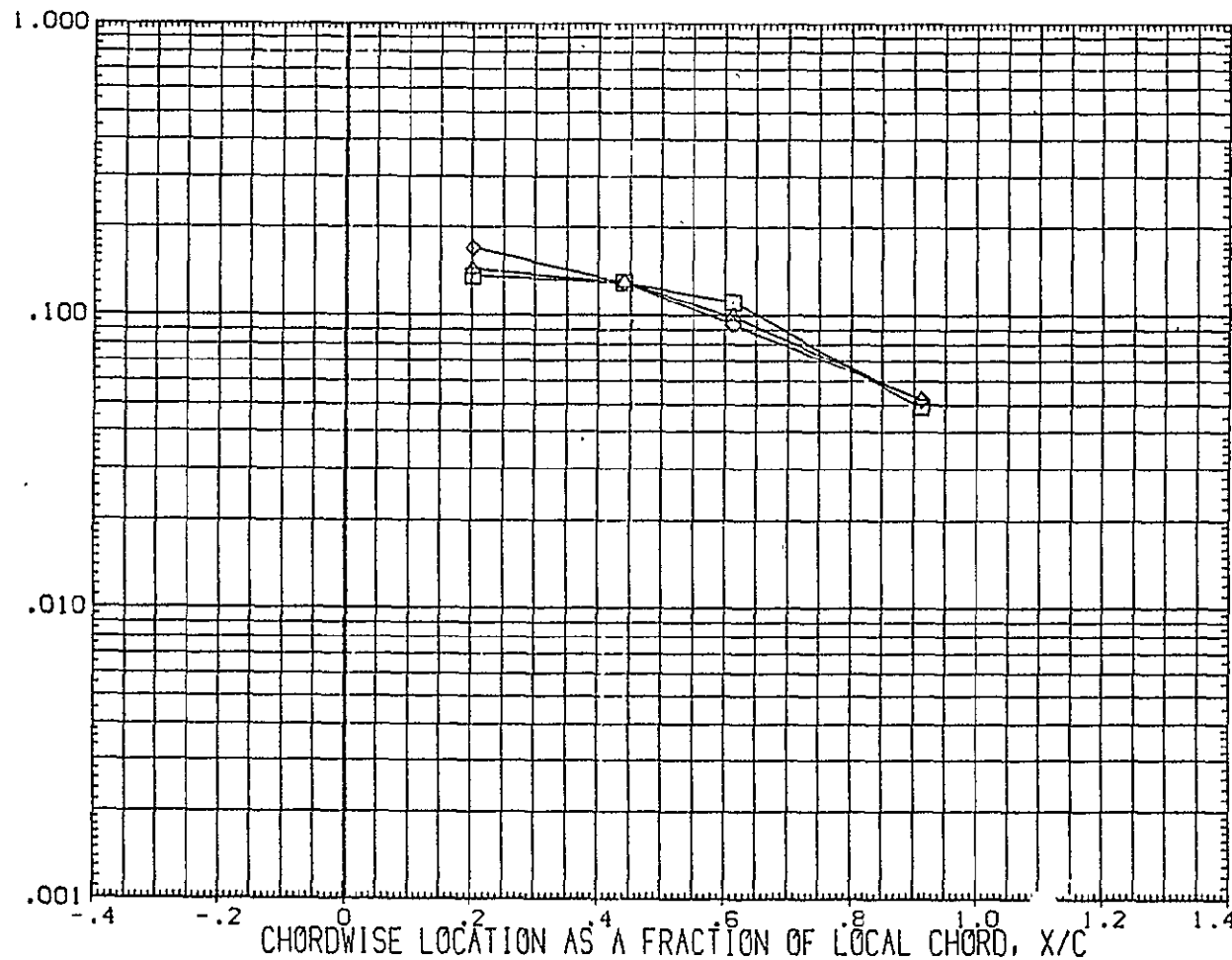


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/HT = 1.000 $2Y/B$ = .600

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
[RUGW07]	DATA NOT AVAILABLE	.000	.000
[RUGW10]	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000
[RUGW11]	OH12/1H21 (CAL HST 173-100) 37 0	30.000	.000
[RUGW12]	OH12/1H21 (CAL HST 173-100) 37 0	35.000	.000
[RUGW13]	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{ref}

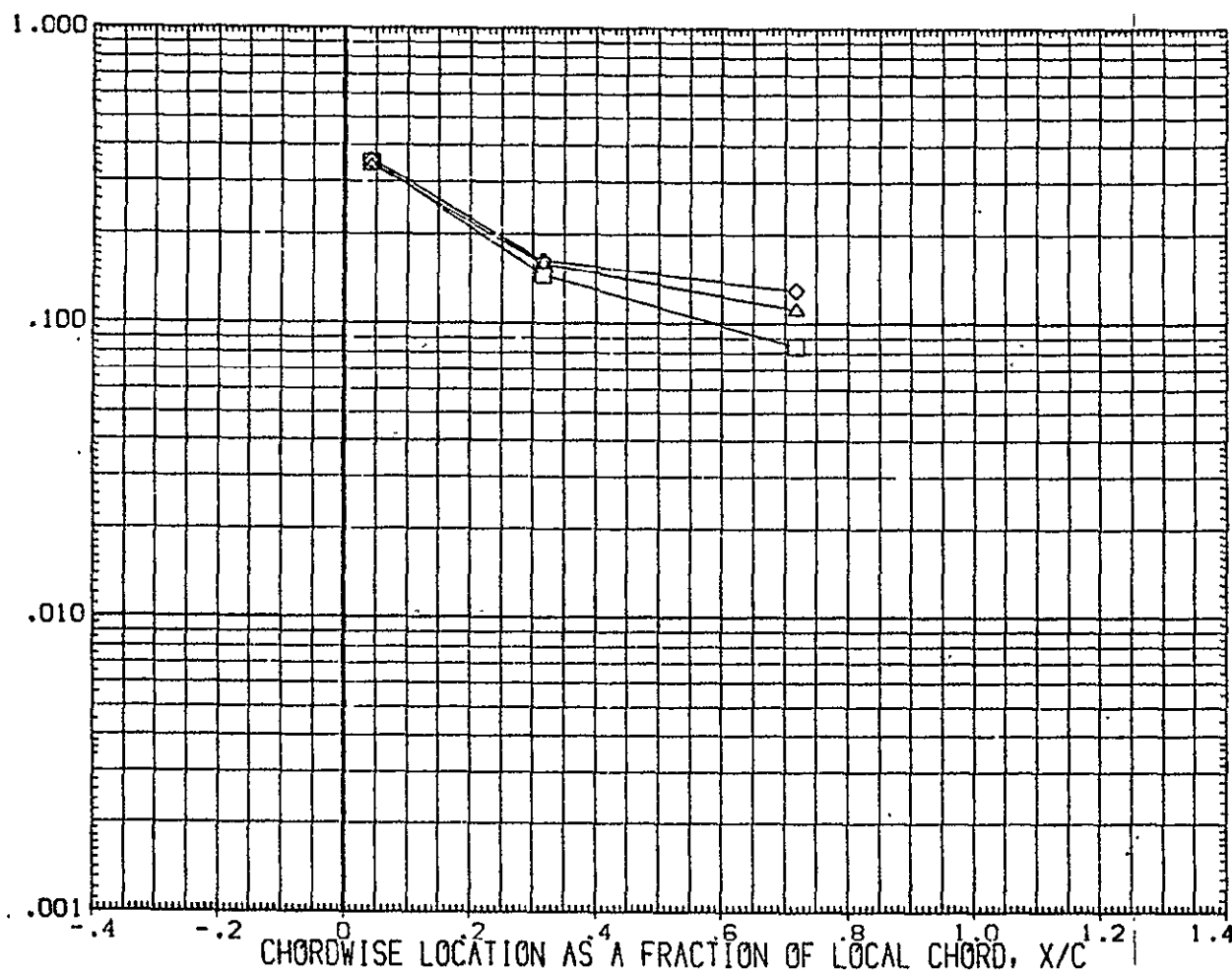


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/HT = 1.000 2Y/B = .750

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	□	DATA NOT AVAILABLE	.000	.000
(RUGV10)	×	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV11)	×	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV12)	×	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGV13)	△	DATA NOT AVAILABLE	40.000	.000

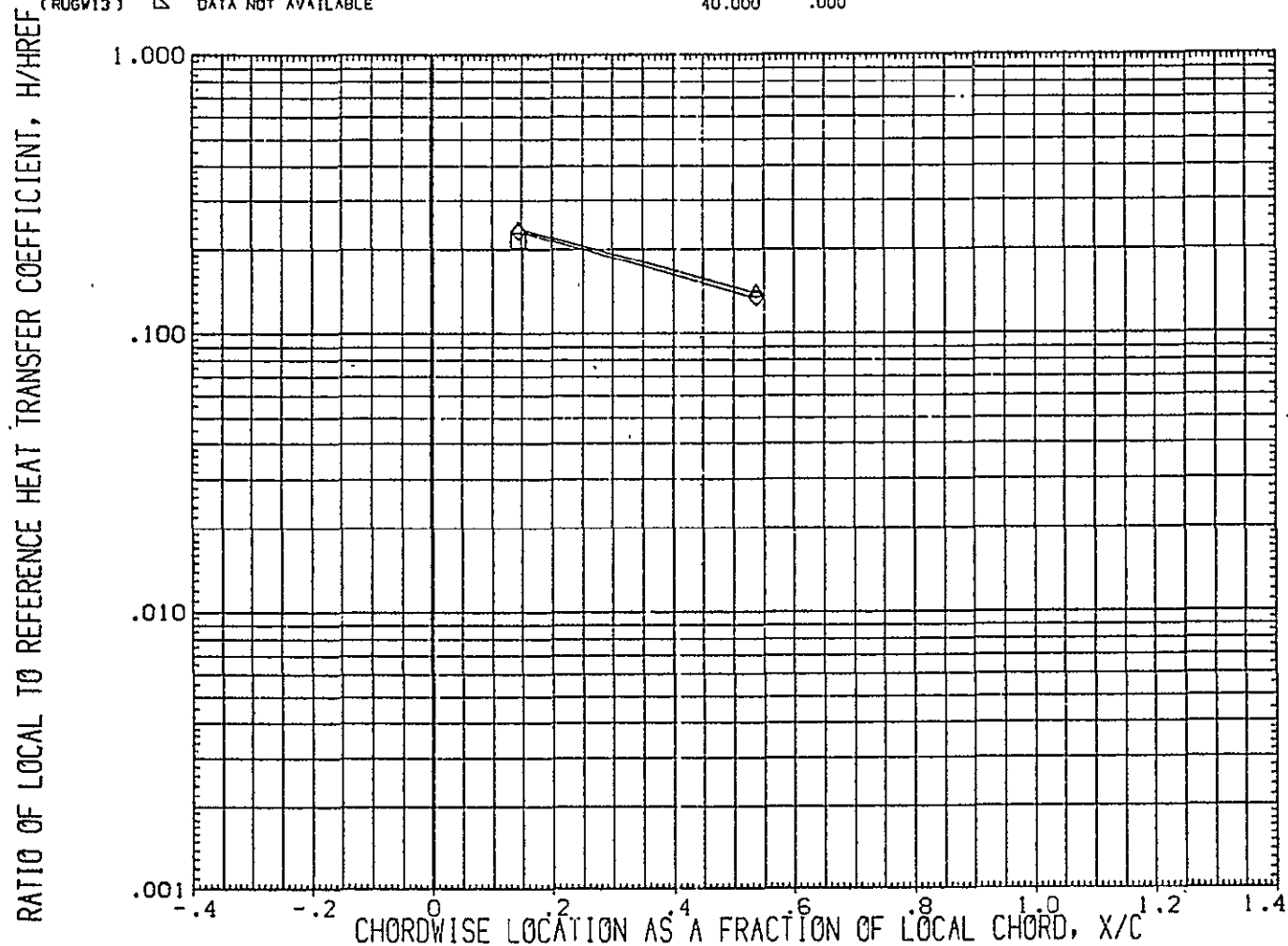


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 10.500 HAW/HT= 1.000 $2Y/B = .950$ PAGE 675

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV11)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV12)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{ref}

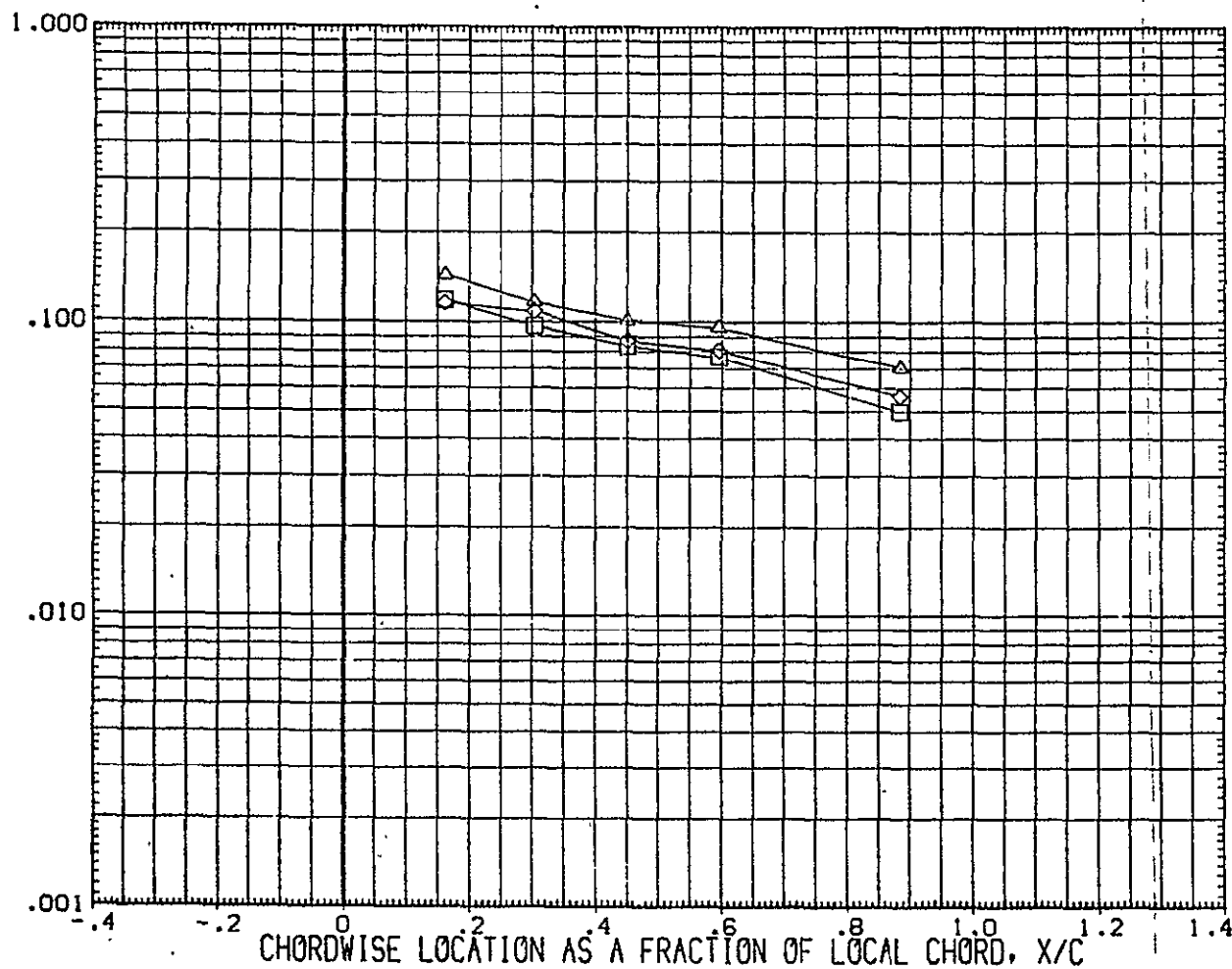


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 12.200 HAW/HT = .850 $2Y/B = .250$ PAGE 676

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.030
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.030
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

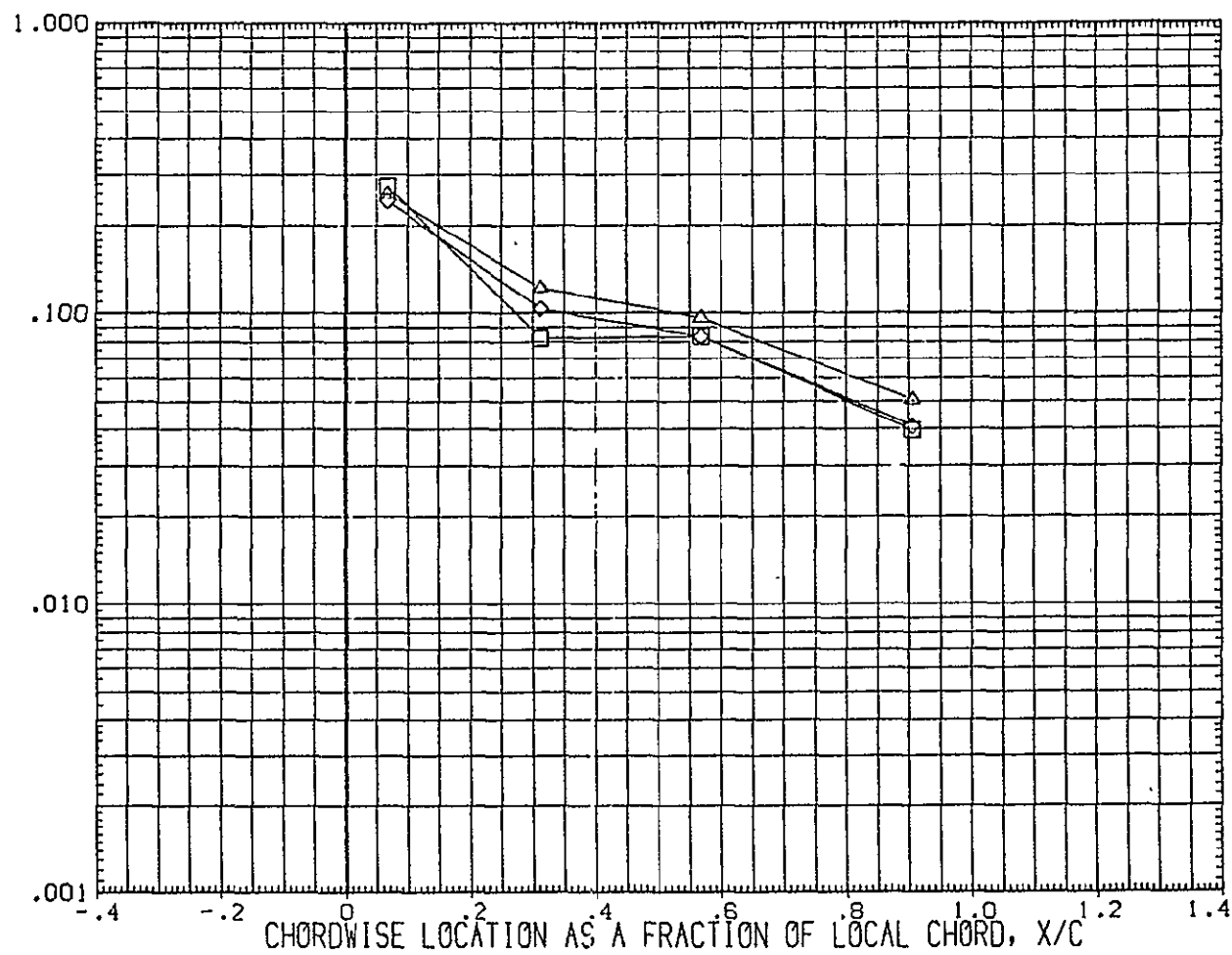


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 12.200 HAW/HT = .850 2Y/B = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

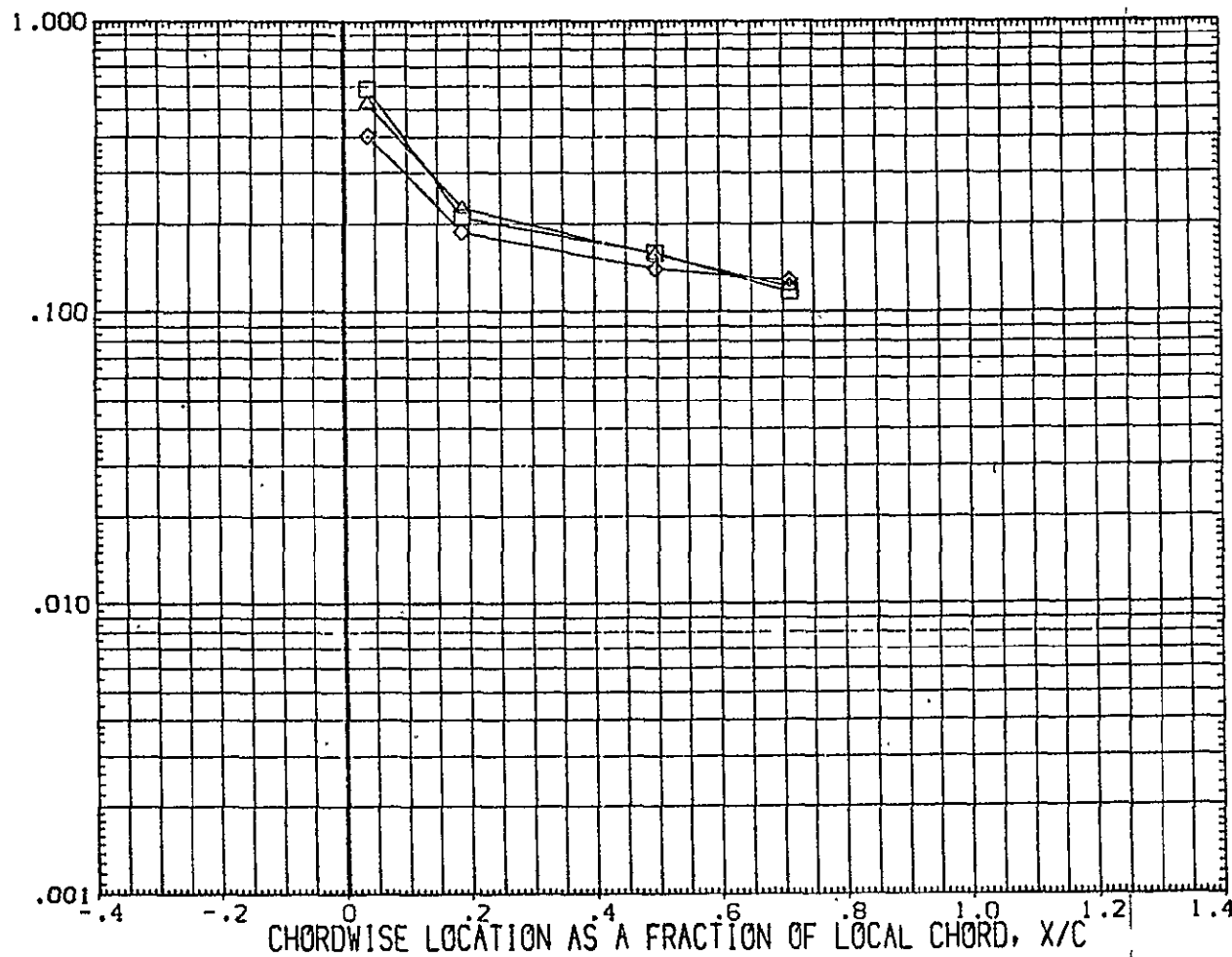


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 12.200 HAW/HT = .850 $2Y/B$ = .500 PAGE 678

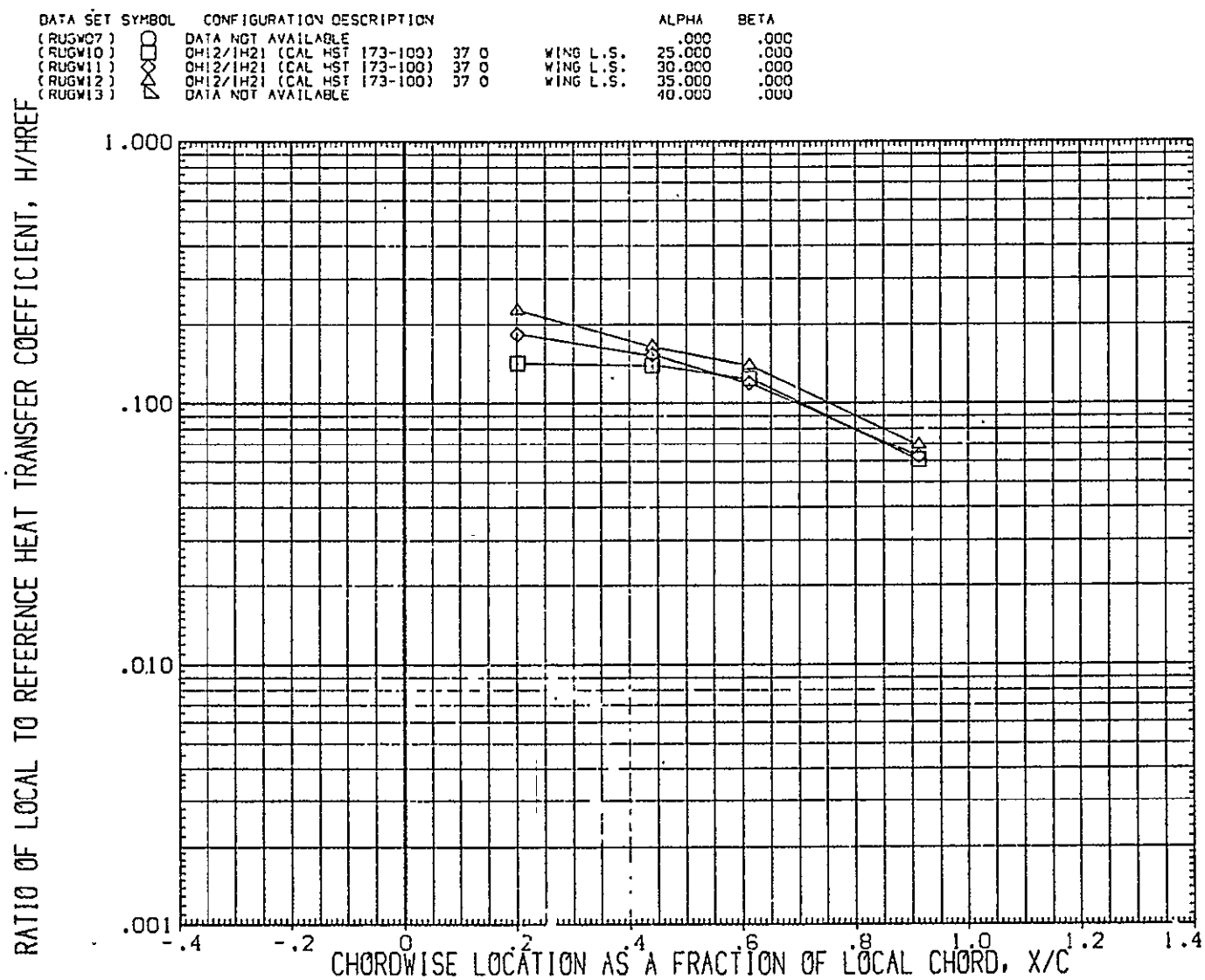


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 12.200 HAW/HT = .850 $2Y/B$ = .600 PAGE 679

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/IH21 (CAL HST 173-100) 37 0	25.000	.000
(RUGW11)	OH12/IH21 (CAL HST 173-100) 37 0	30.000	.000
(RUGW12)	OH12/IH21 (CAL HST 173-100) 37 0	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

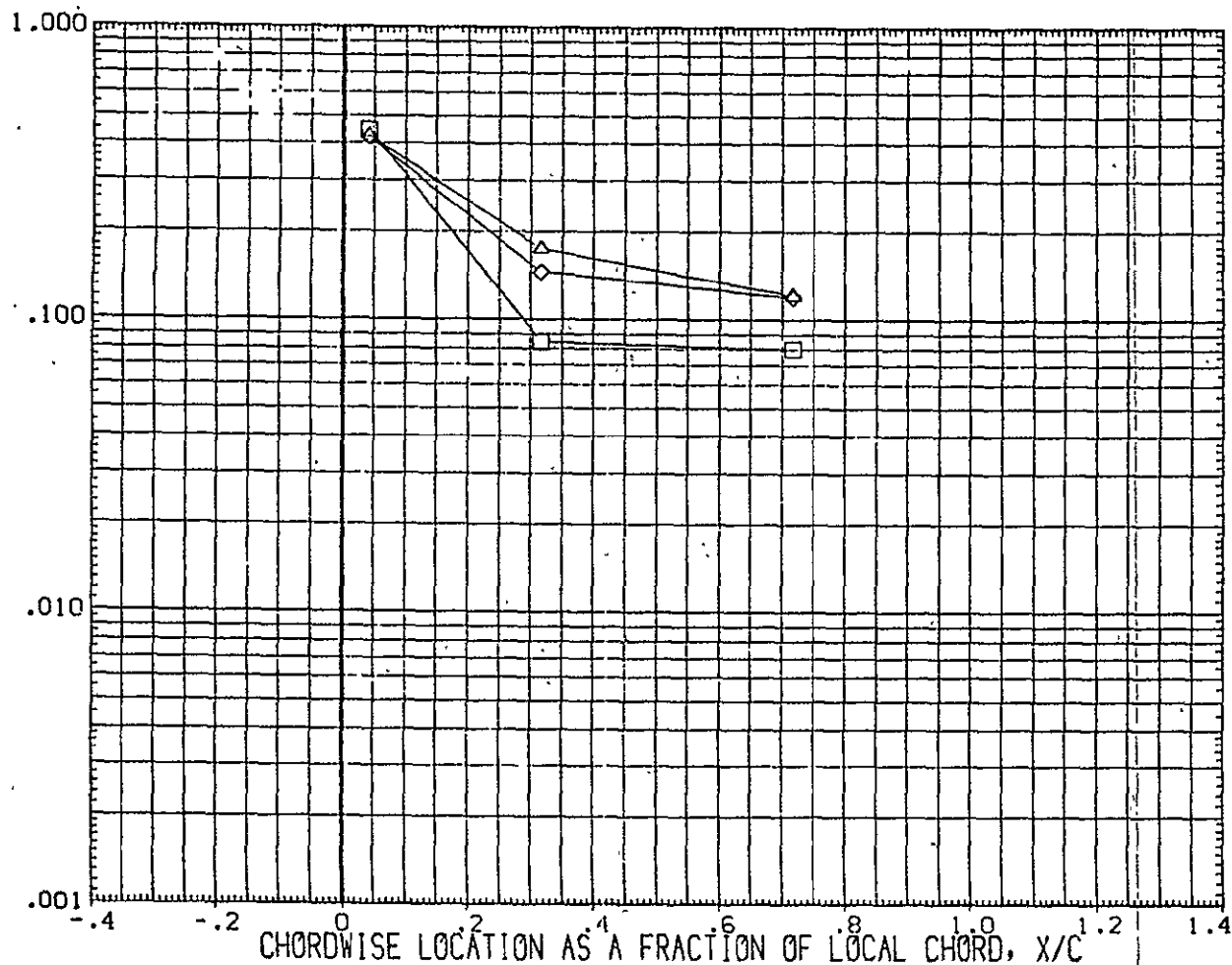


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 12.200 HAW/HT = .850 2Y/B = .750

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

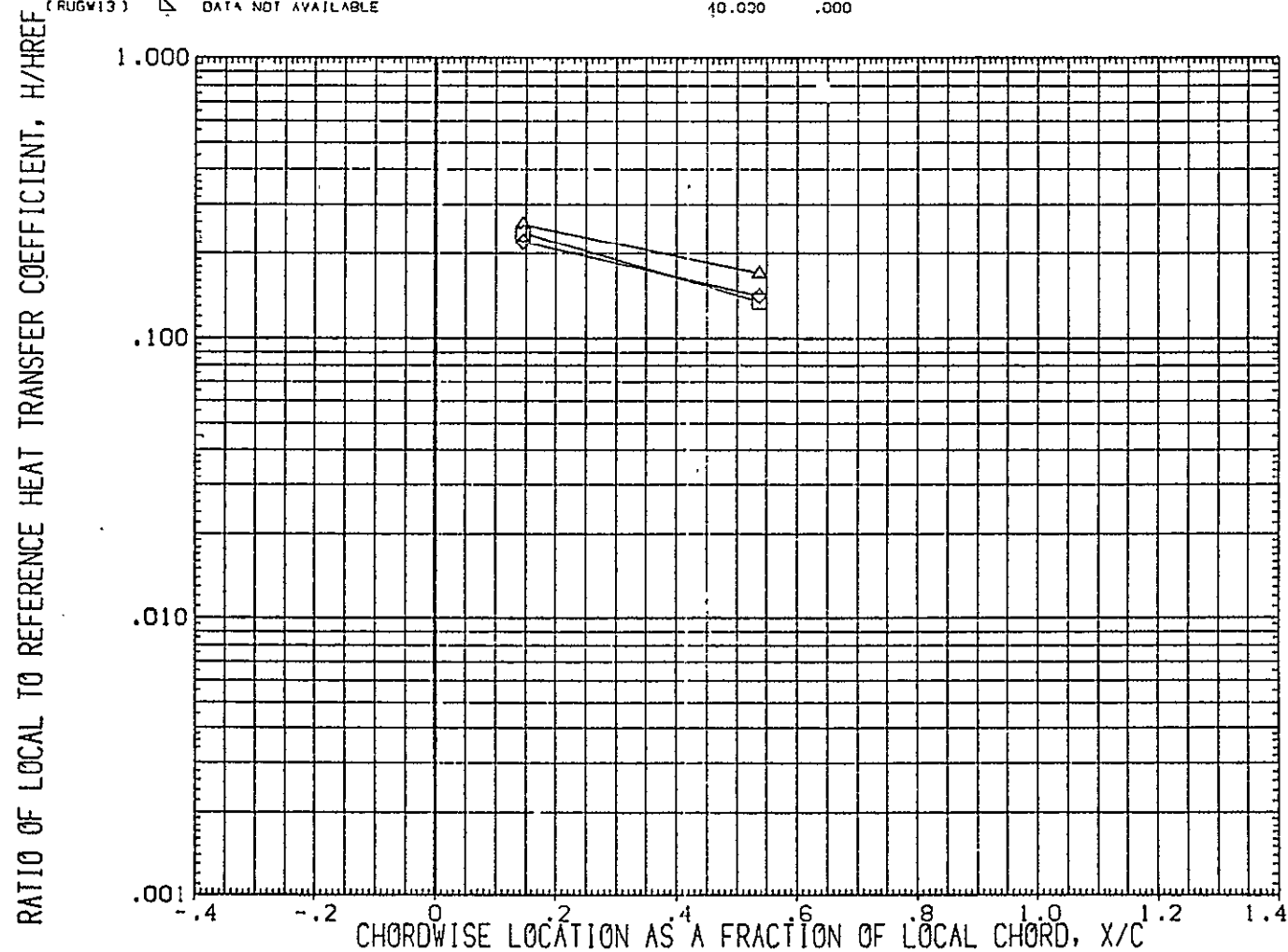


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 12.200 HAW/HT = .850 $2Y/B$ = .950 PAGE 681

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

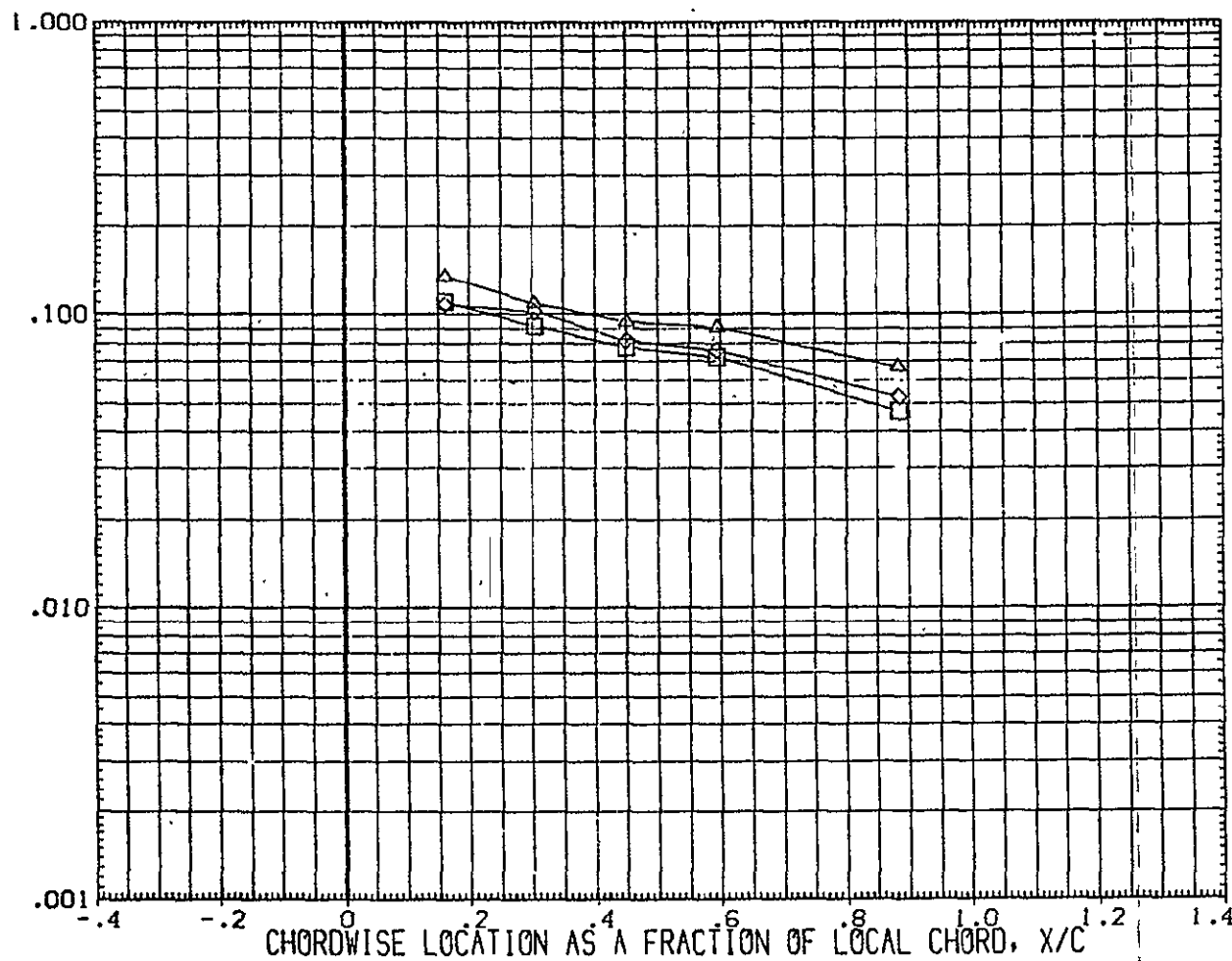


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 12.200 HAW/HT = .900 2Y/B = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	Q412/H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV11)	Q412/H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV12)	Q412/H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

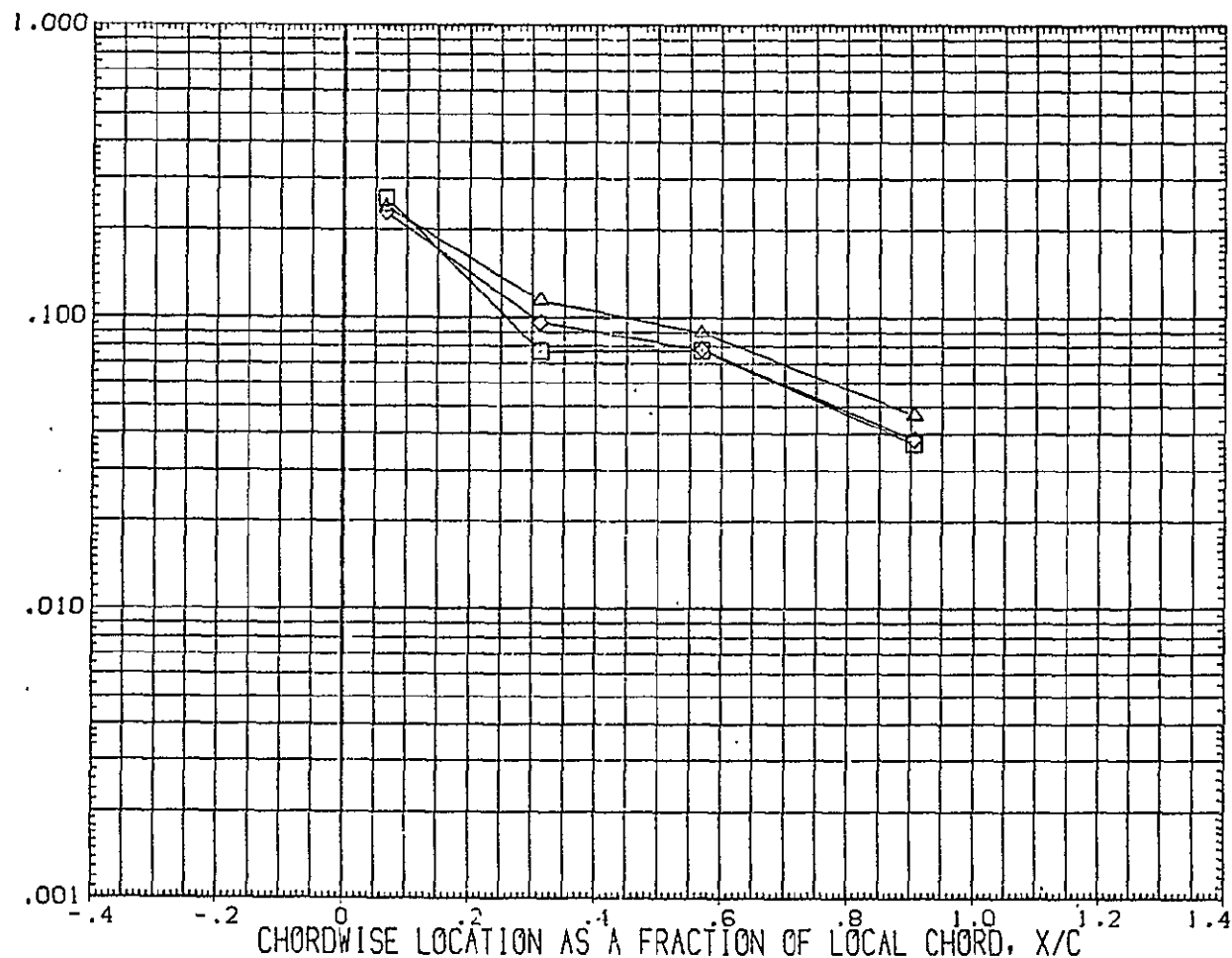


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 12.200 HAW/HT = .900 2Y/B = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

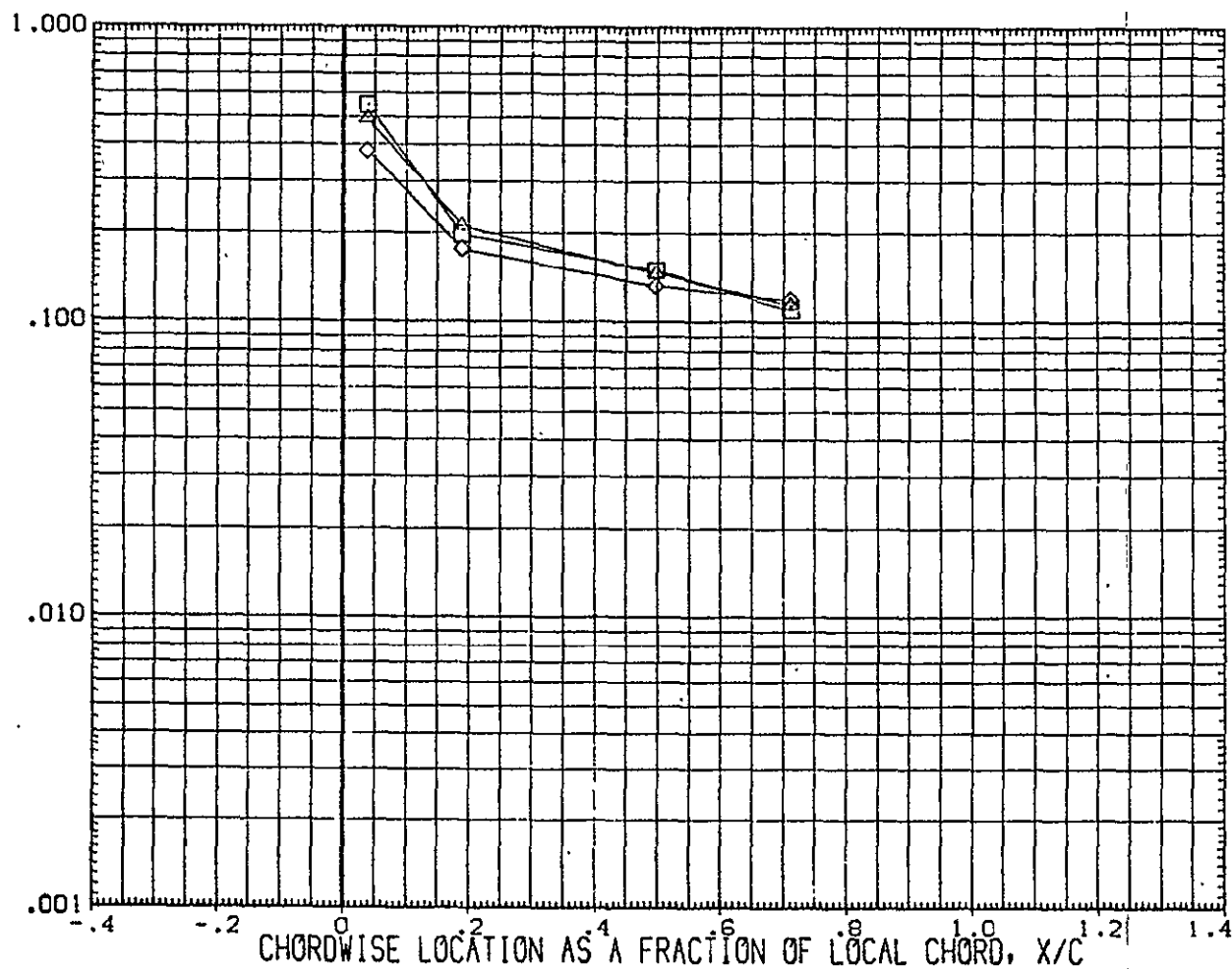


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 12.200 HAW/HT = .900 $2Y/B$ = .500

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	0412/1421 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV11)	0412/1421 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV12)	0412/1421 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

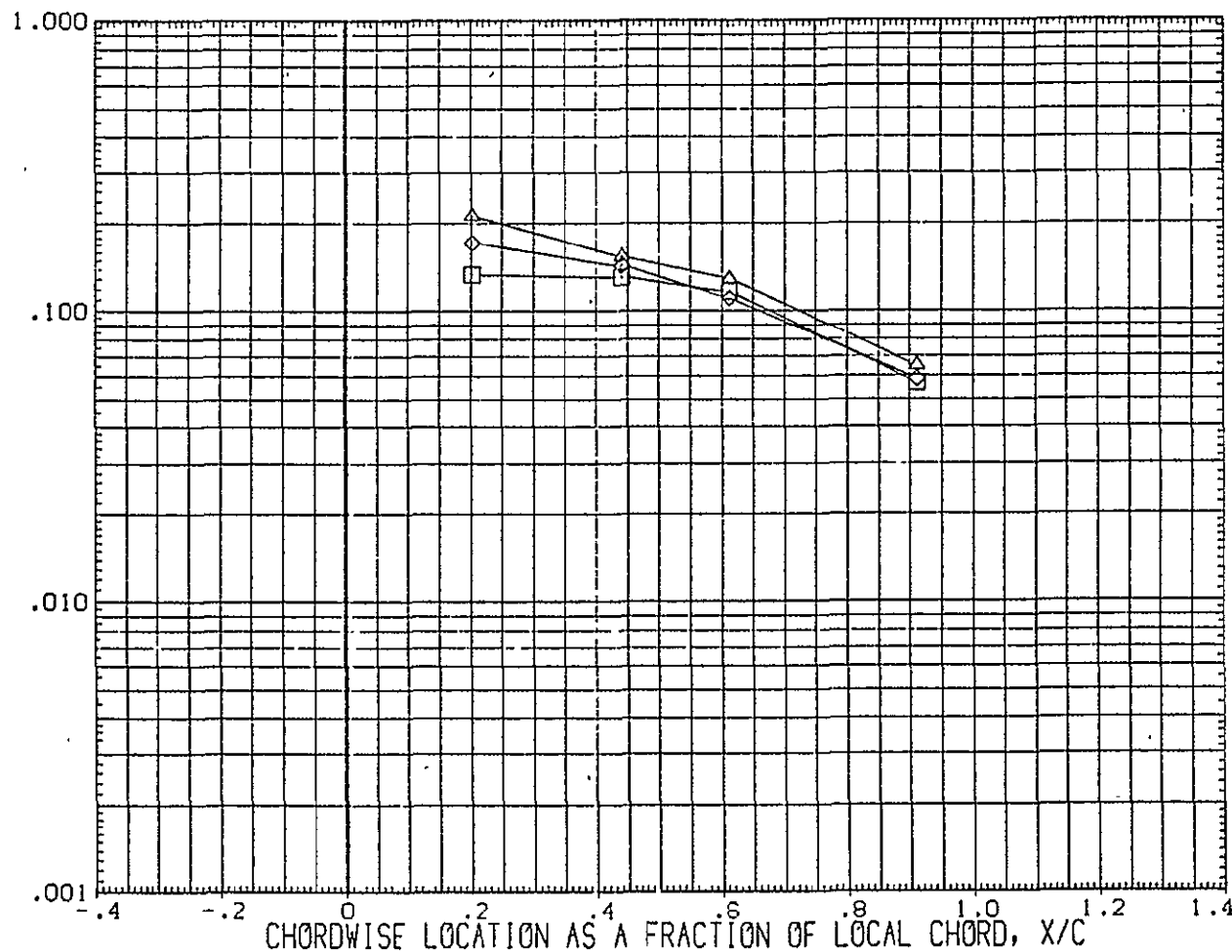


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 12.200 HAW/HT = .900 $2Y/B$ = .600 PAGE 685

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUCW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

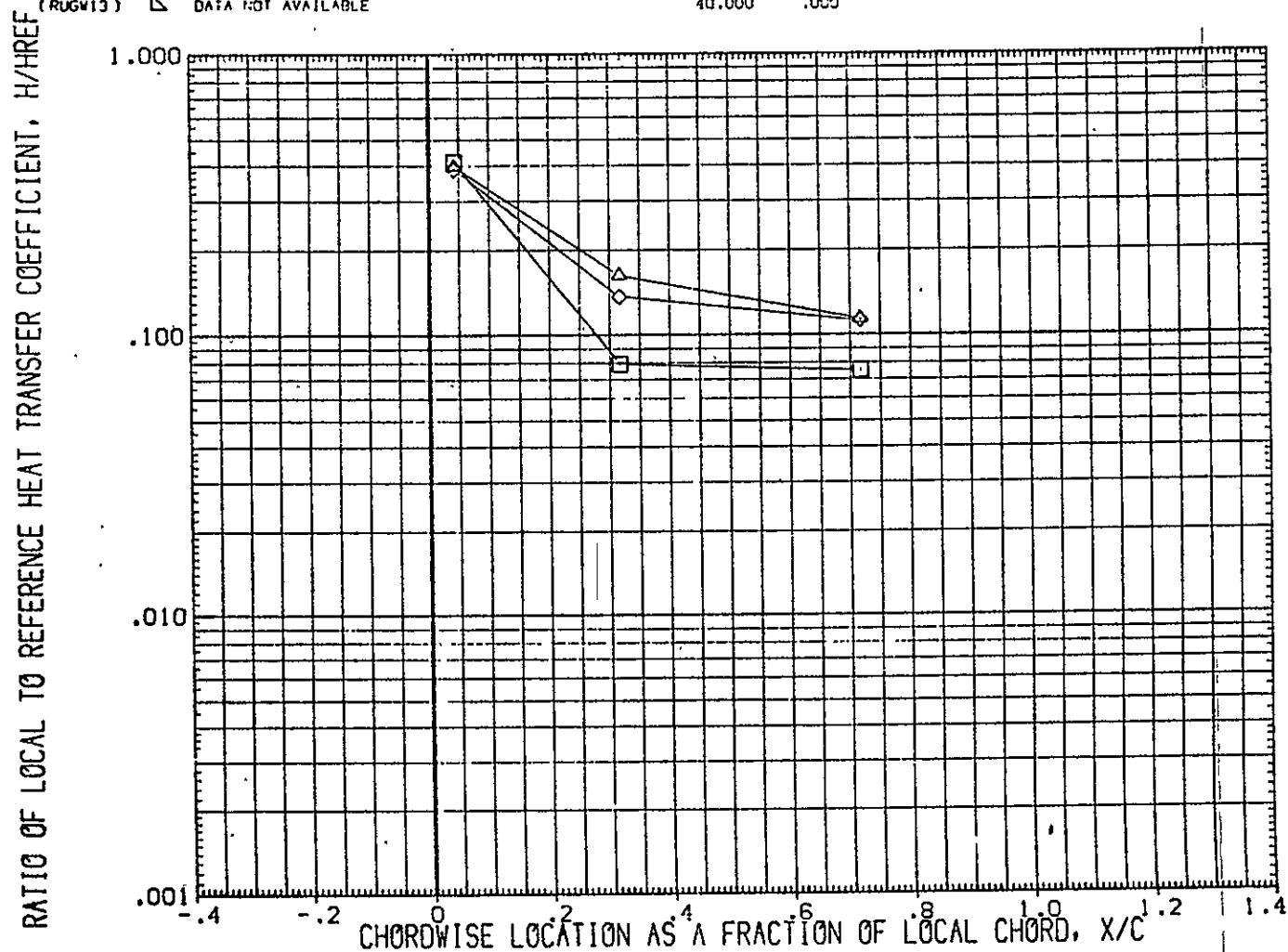


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 12.200 HAW/HT = .900 $2Y/B$ = .750 PAGE 686

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE		
(RUGW10)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

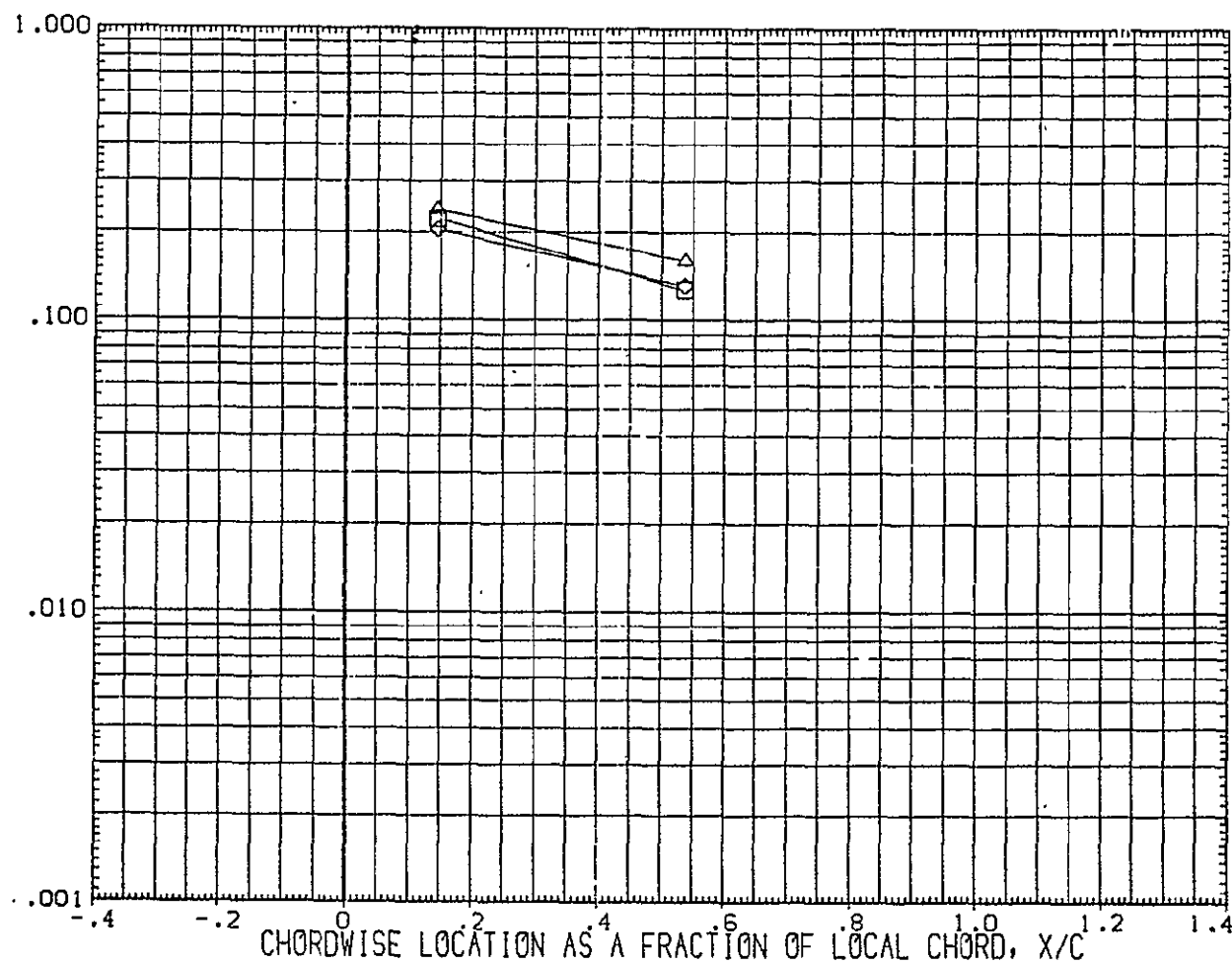


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 12.200 HAW/HT = .900 $2Y/B$ = .950

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	OH12/TH21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV11)	OH12/TH21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV12)	OH12/TH21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

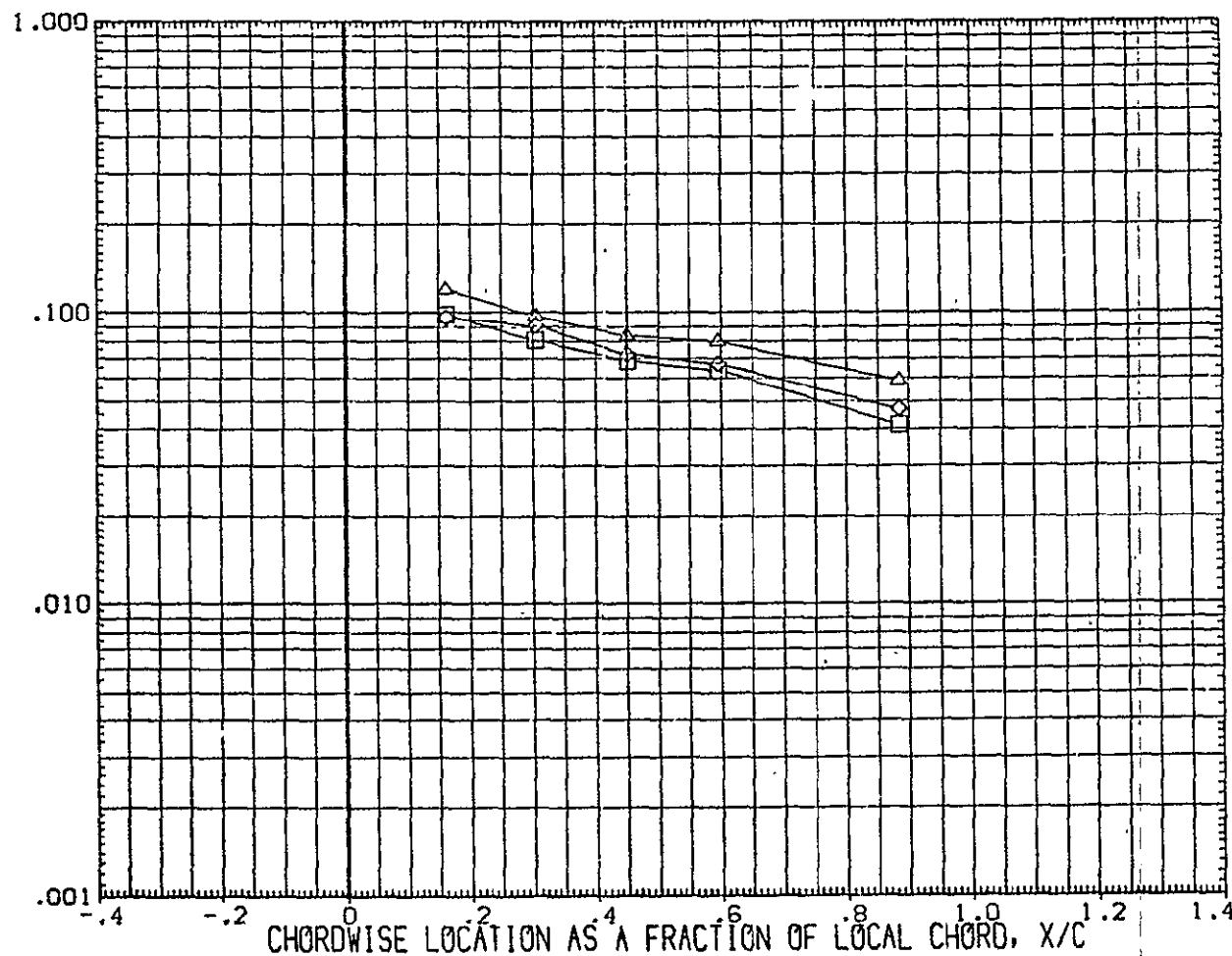


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 12.200 HAW/HT = 1.000 2Y/B = .250

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE		
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	33.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

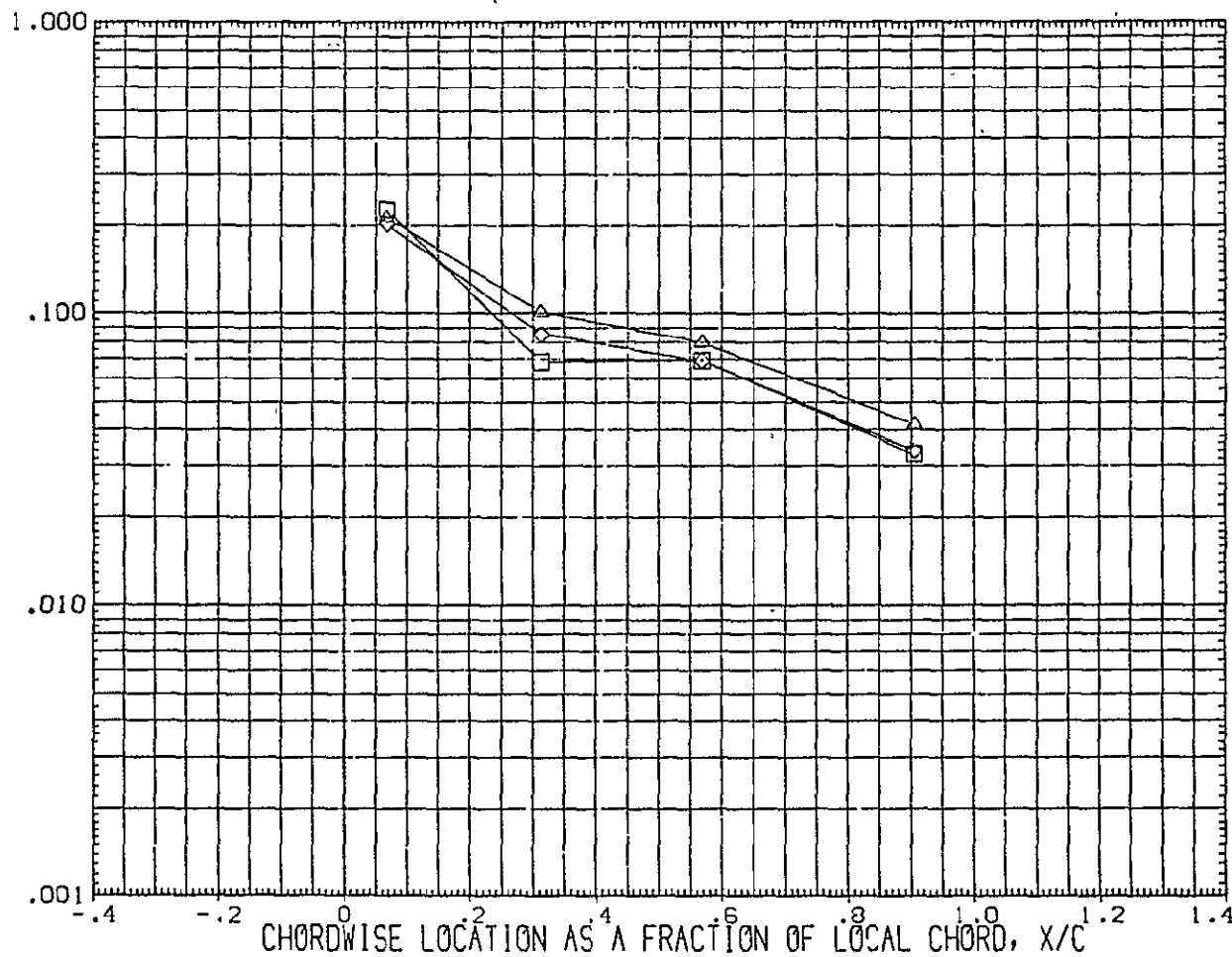


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 12.200 HAW/HT = 1.000 $2Y/B = .400$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	DATA NOT AVAILABLE	.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

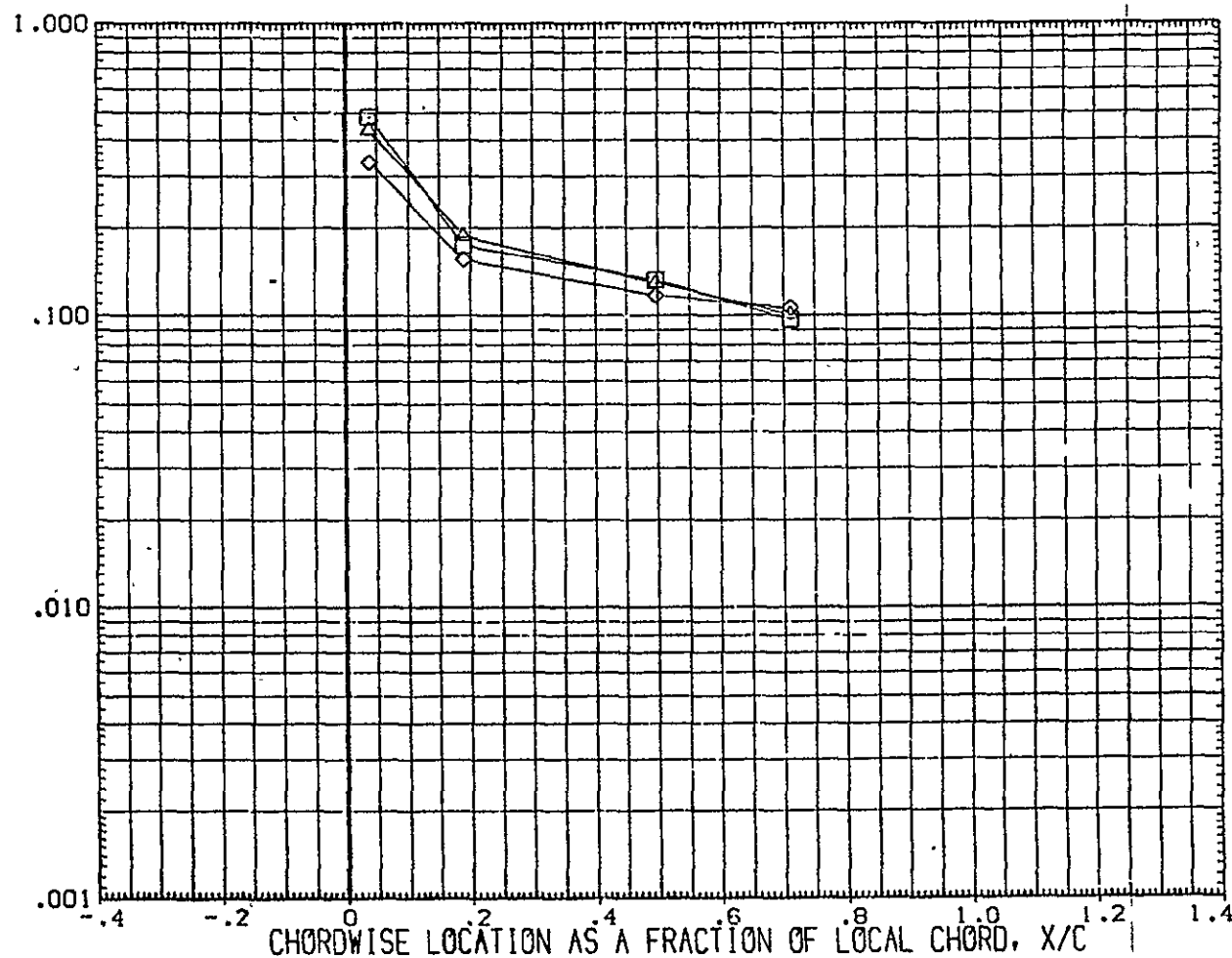


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 12.200 HAW/HT = 1.000 $2Y/B = .500$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

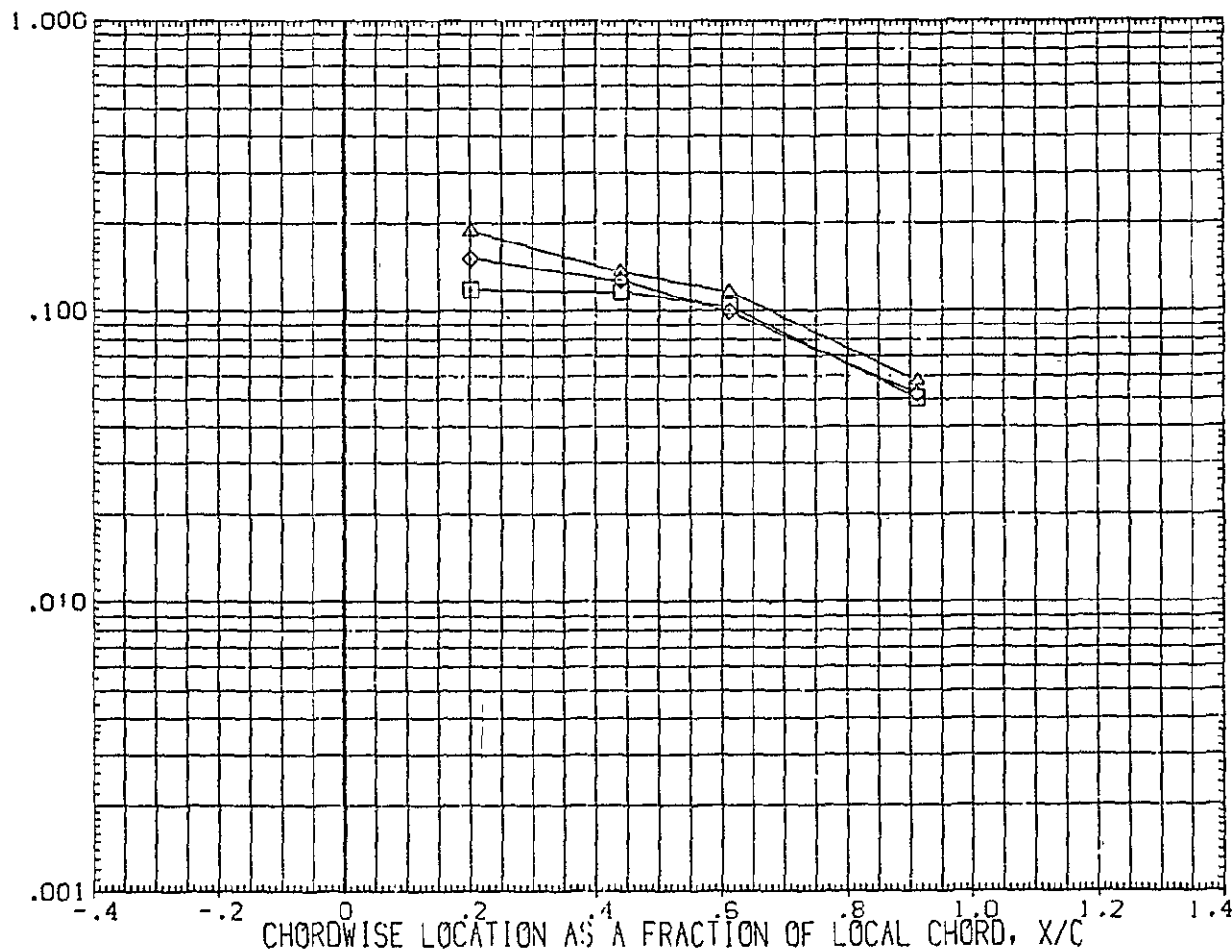


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 12.200 HAW/HT = 1.000 2Y/B = .600

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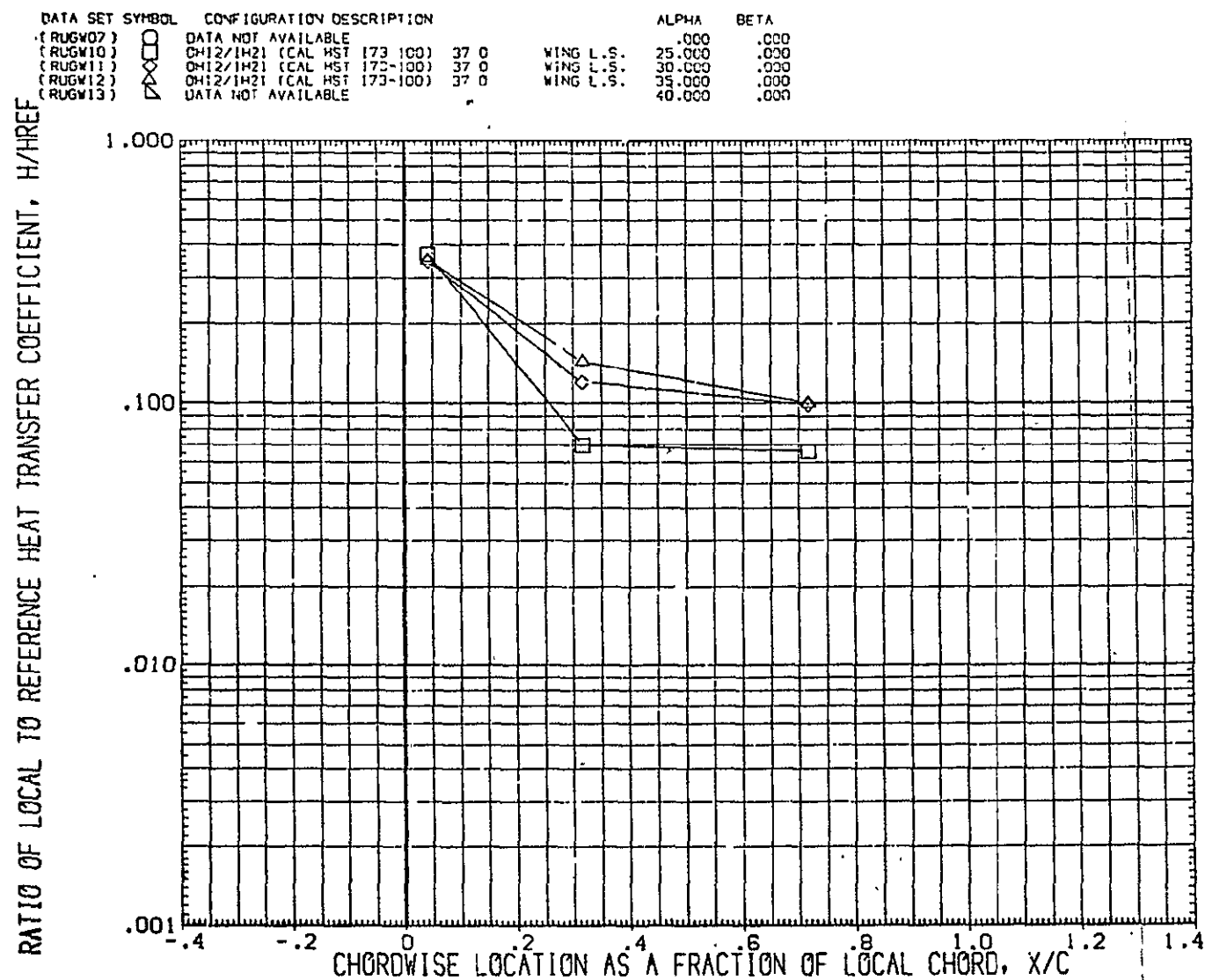
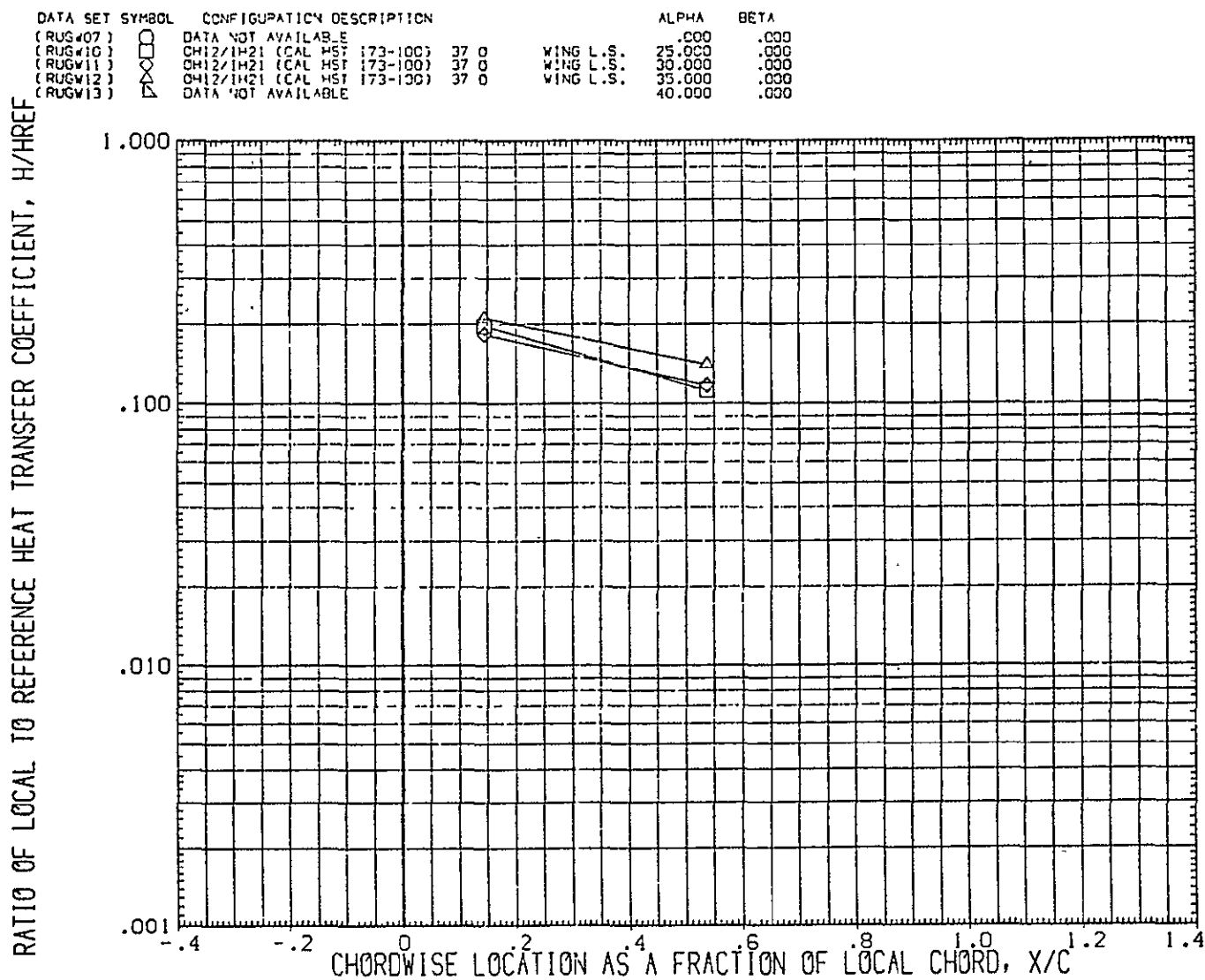


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 12.200 HAW/HT= 1.000 $2Y/B = .750$ PAGE 692



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG#07)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000 .000
(RUG#10)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	25.000 .000
(RUG#11)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	30.000 .000
(RUG#12)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	35.000 .000
(RUG#13)	DATA NOT AVAILABLE	40.000	.000

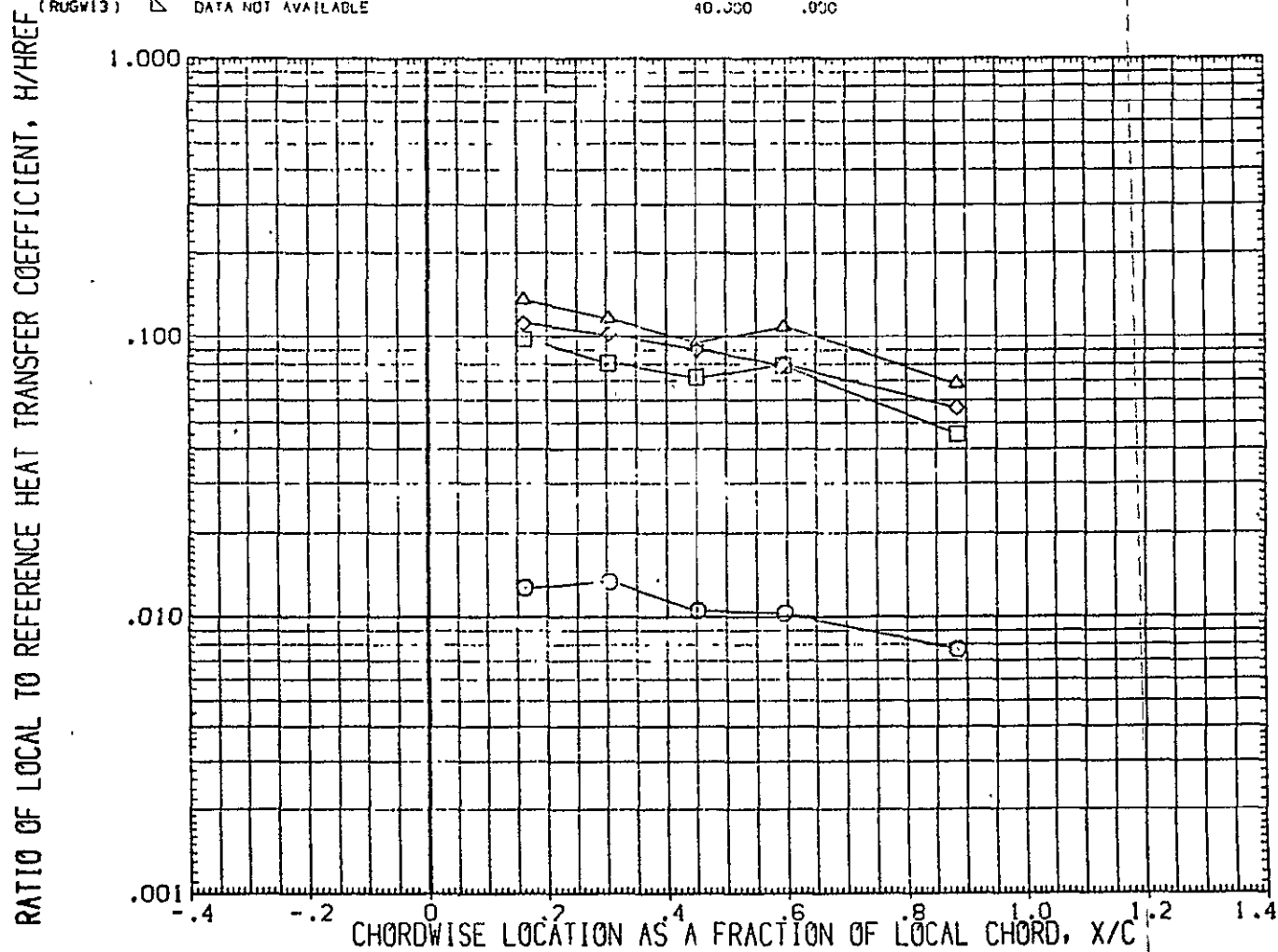


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = .850 $2Y/B$ = .250

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	□	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	○	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	△	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	◇	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	×	DATA NOT AVAILABLE	40.000	.000

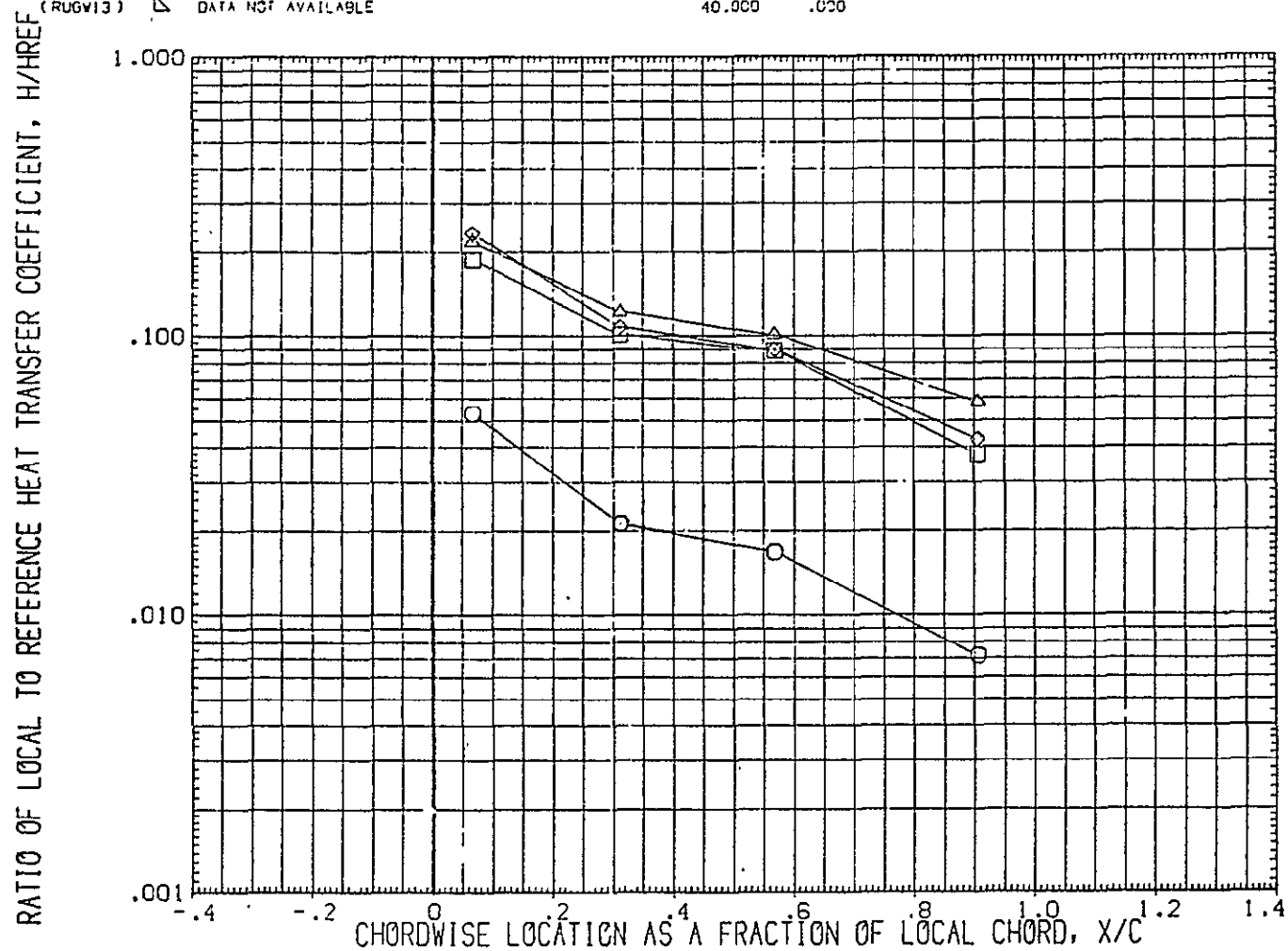


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = .850 $2Y/B$ = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1421 (CAL 151 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	OH12/1421 (CAL 151 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1421 (CAL 151 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1421 (CAL 151 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

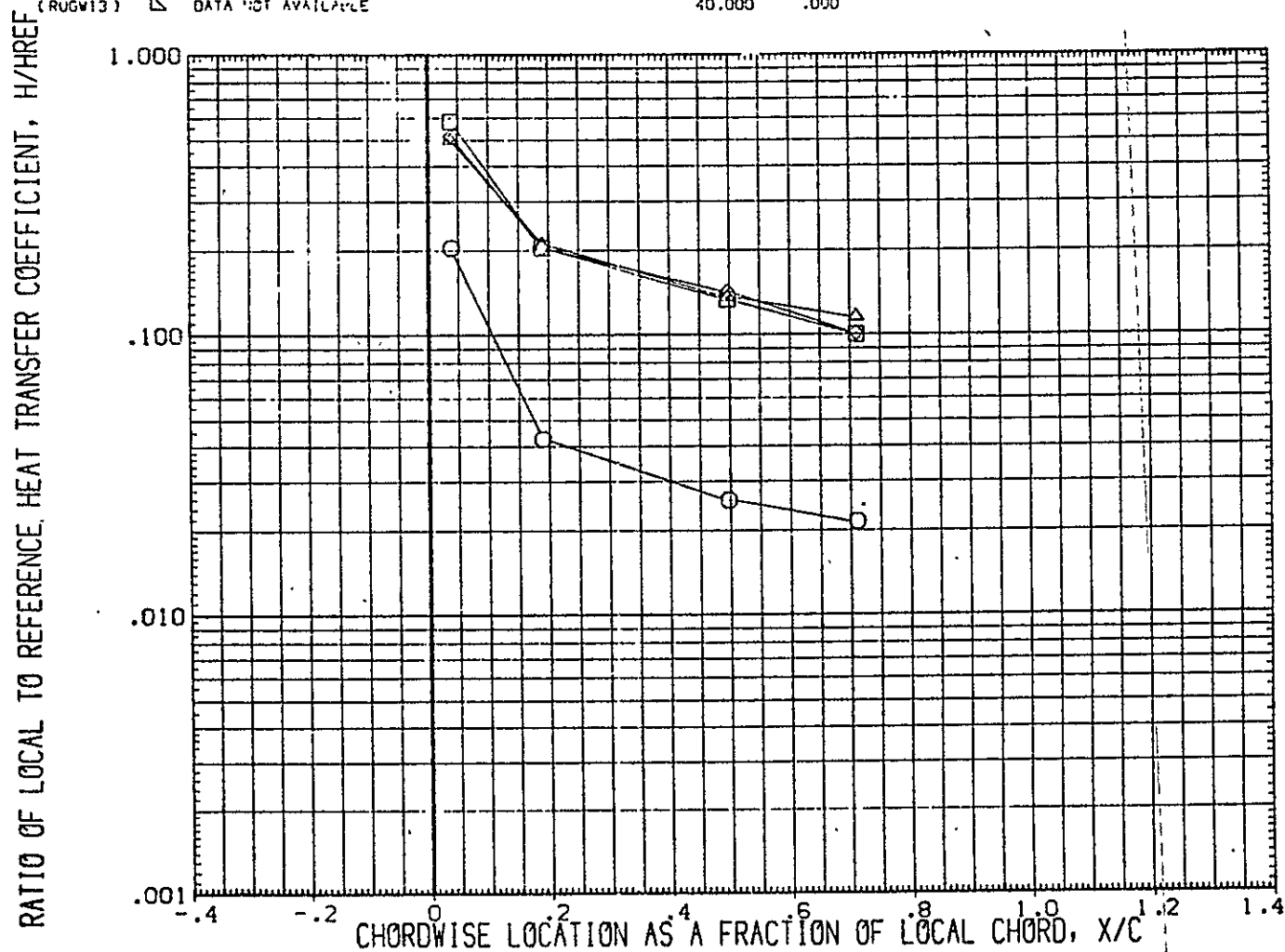


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = .850 $2Y/B$ = .500

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	QH12/IH21 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW10)	QH12/IH21 (CAL HST 173-100) 37 0	WING L.S.	25.000
(RUGW11)	QH12/IH21 (CAL HST 173-100) 37 0	WING L.S.	30.000
(RUGW12)	QH12/IH21 (CAL HST 173-100) 37 0	WING L.S.	35.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

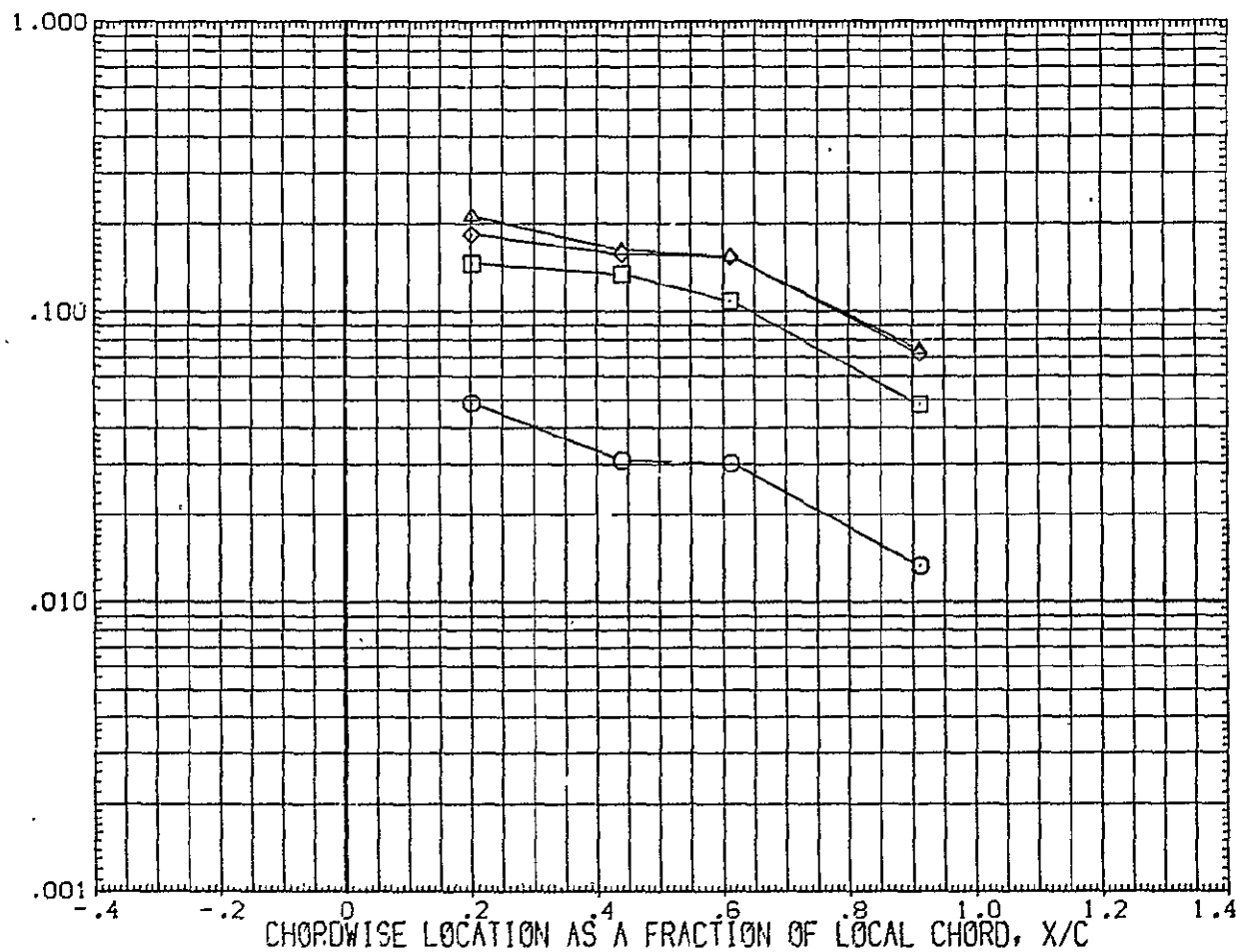


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = .850 2Y/B = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGW07)	OH12/1H21 (CAL HST 173-100) 37 U WING L.S.	.000	.000
(PUGW10)	OH12/1H21 (CAL HST 173-100) 37 O WING L.S.	25.000	.000
(PUGW11)	OH12/1H21 (CAL HST 173-100) 37 O WING L.S.	30.000	.000
(PUGW12)	OH12/1H21 (CAL HST 173-100) 37 O WING L.S.	35.000	.000
(PUGW13)	DATA NOT AVAILABLE	40.000	.000

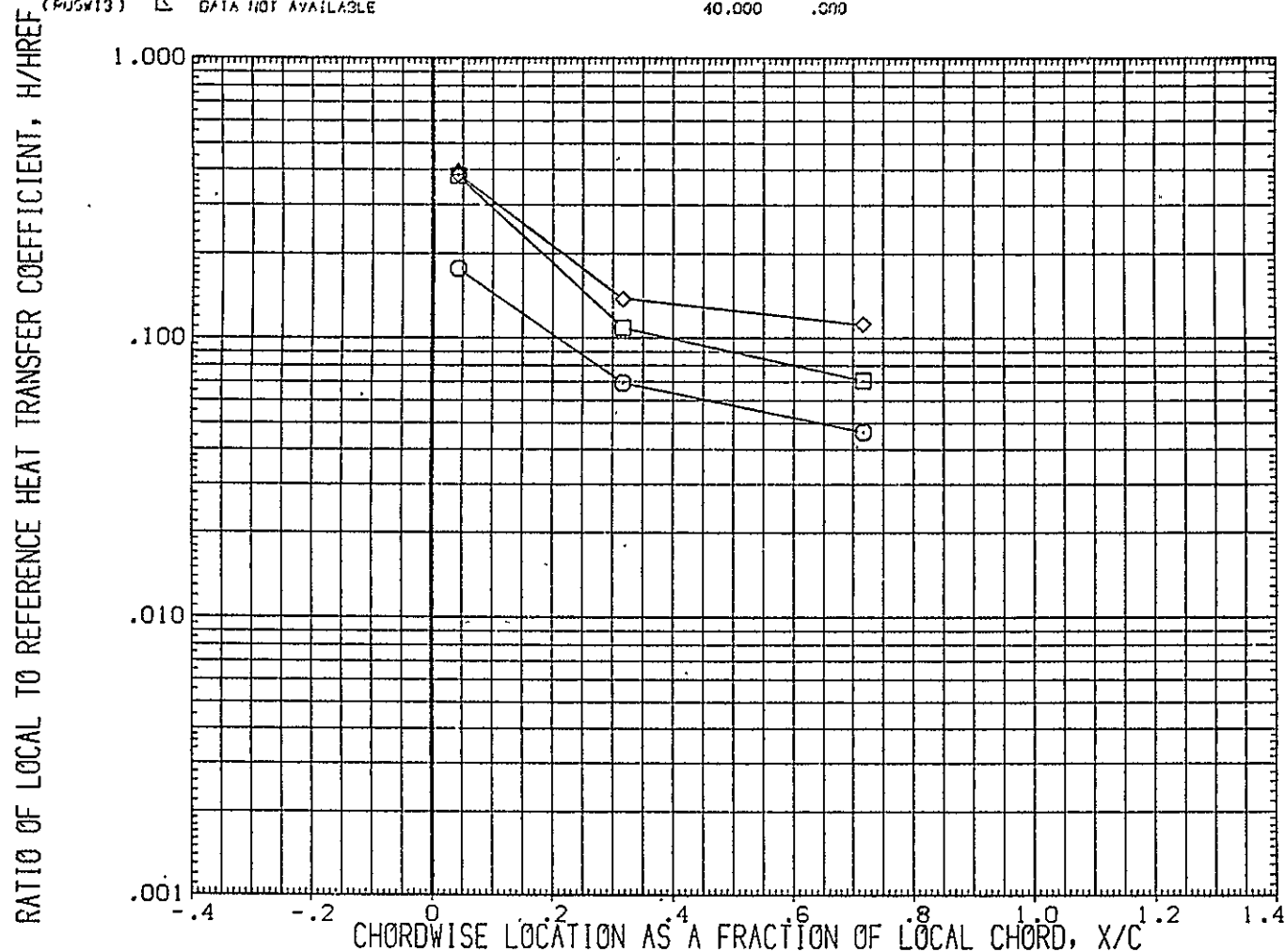


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = .850 $2Y/B$ = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CH:2 / H2: (CAL HST 173-100) 37 0	WING L.S.	.000
(PLGW10)	CH:2 / H2: (CAL HST 173-150) 37 0	WING L.S.	.000
(RUGW11)	CH:2 / H2: (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW12)	CH:2 / H2: (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

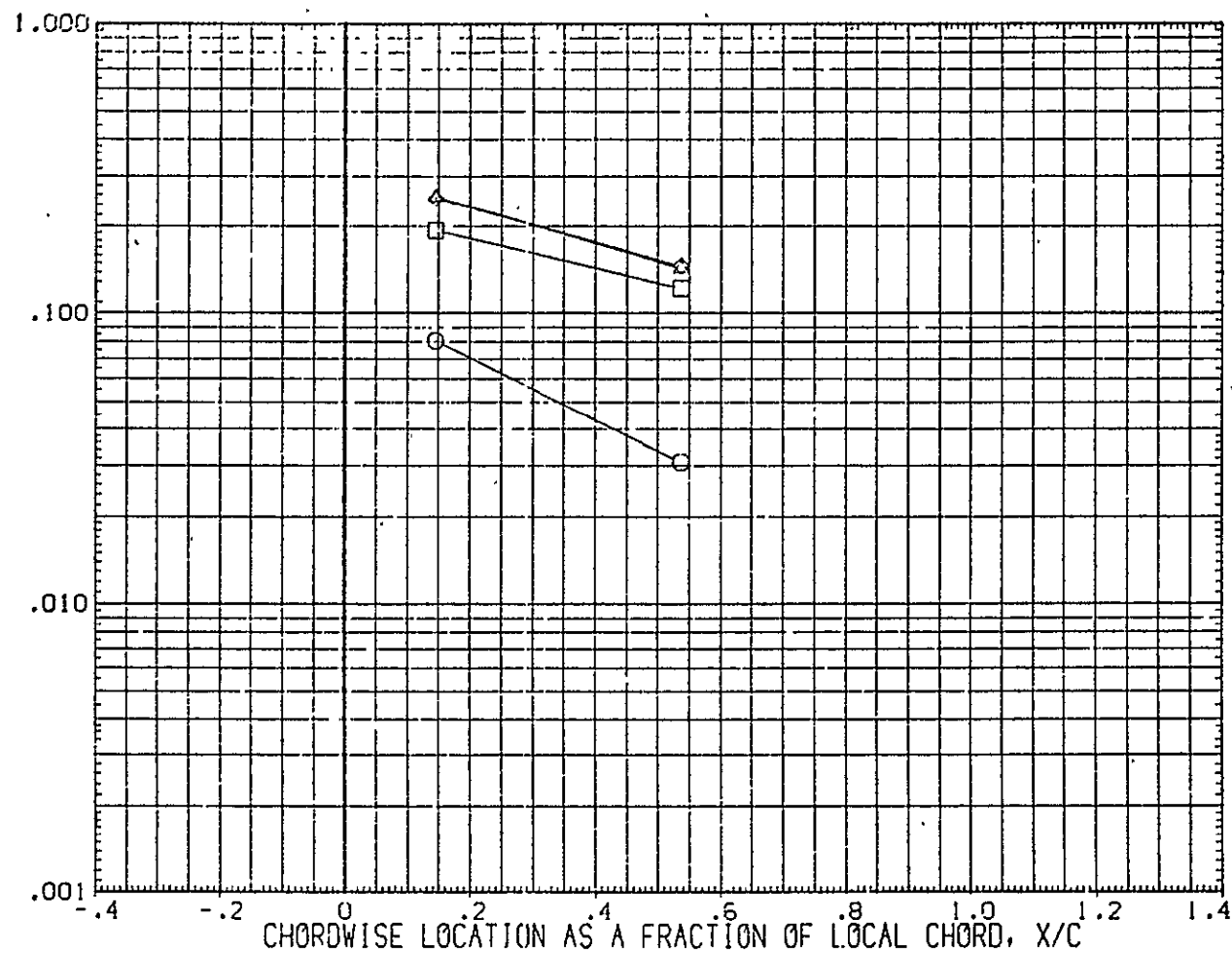


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = .850 2Y/B = .950

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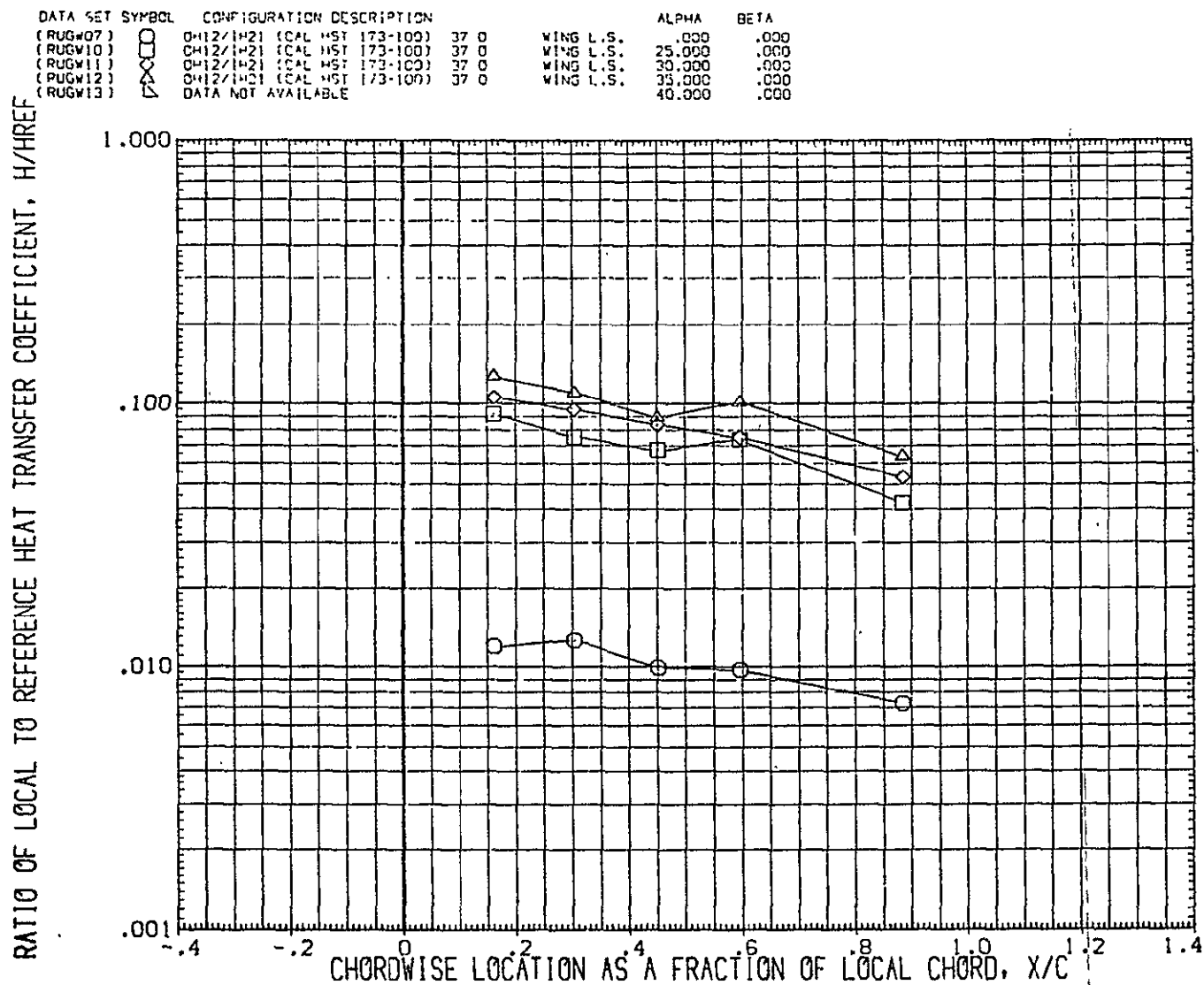


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L1
MACH = 16.000 HAW/HT = .900 2Y/B = .250 PAGE 700

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/HREF

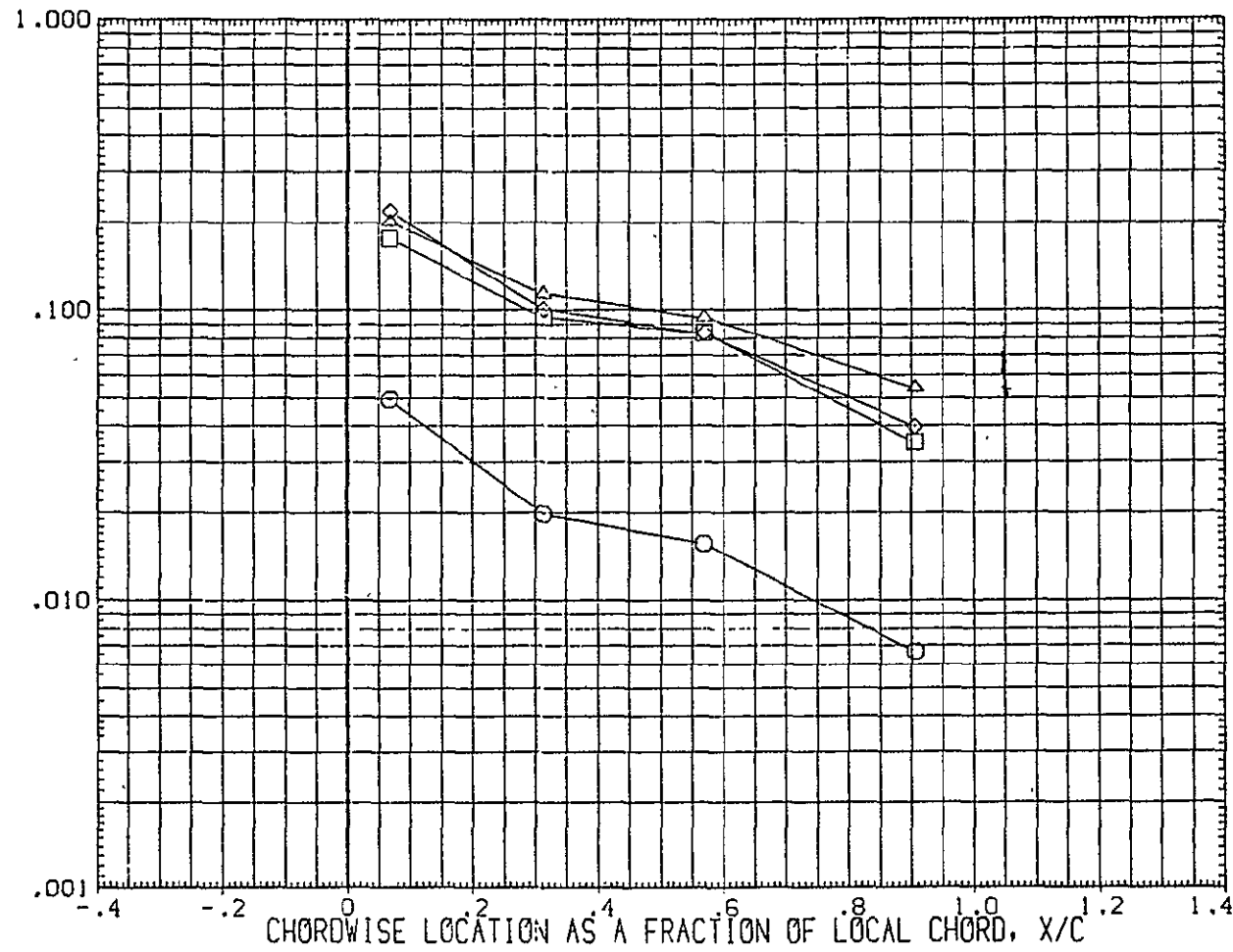


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L1
MACH = 16.000 HAW/HT = .900 2Y/B = .400 PAGE 701

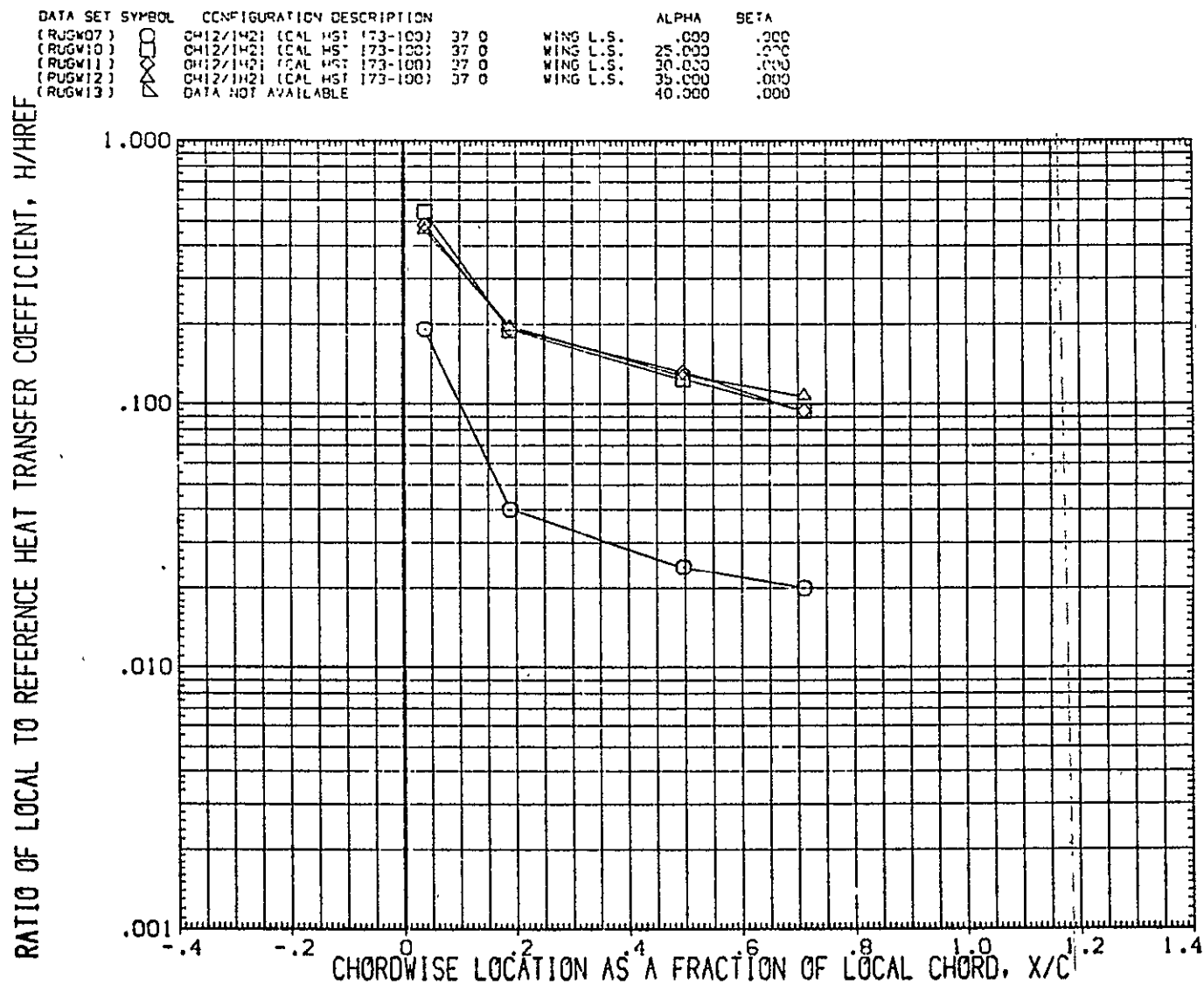


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 16.000 HAW/HT = .900 $2Y/B = .500$ PAGE 702

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CH12/1H21 (CAL HST 173-100) 37 0 WING I.S.	.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 0 WING I.S.	25.000	.000
(RUGW11)	CH12/1H21 (CAL HST 173-100) 37 0 WING I.S.	30.000	.000
(RUGW12)	CH12/1H21 (CAL HST 173-100) 37 0 WING I.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

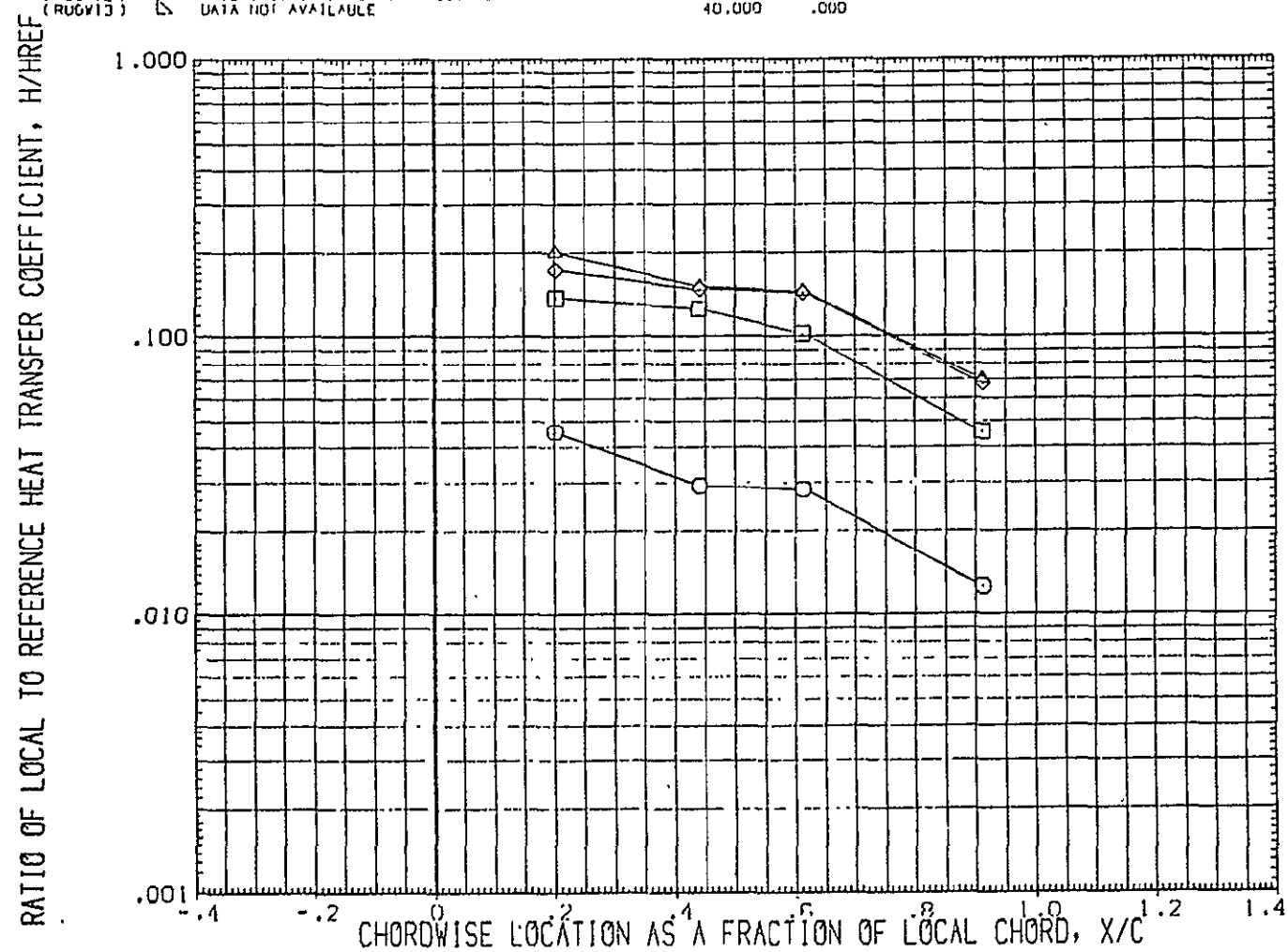


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 16.000 HAW/HT = .900 $2Y/B$ = .600 PAGE 703

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGN07)	CH12/H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGN10)	CH12/H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGN11)	CH12/H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGN12)	CH12/H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGN13)	DATA NOT AVAILABLE	40.000	.000

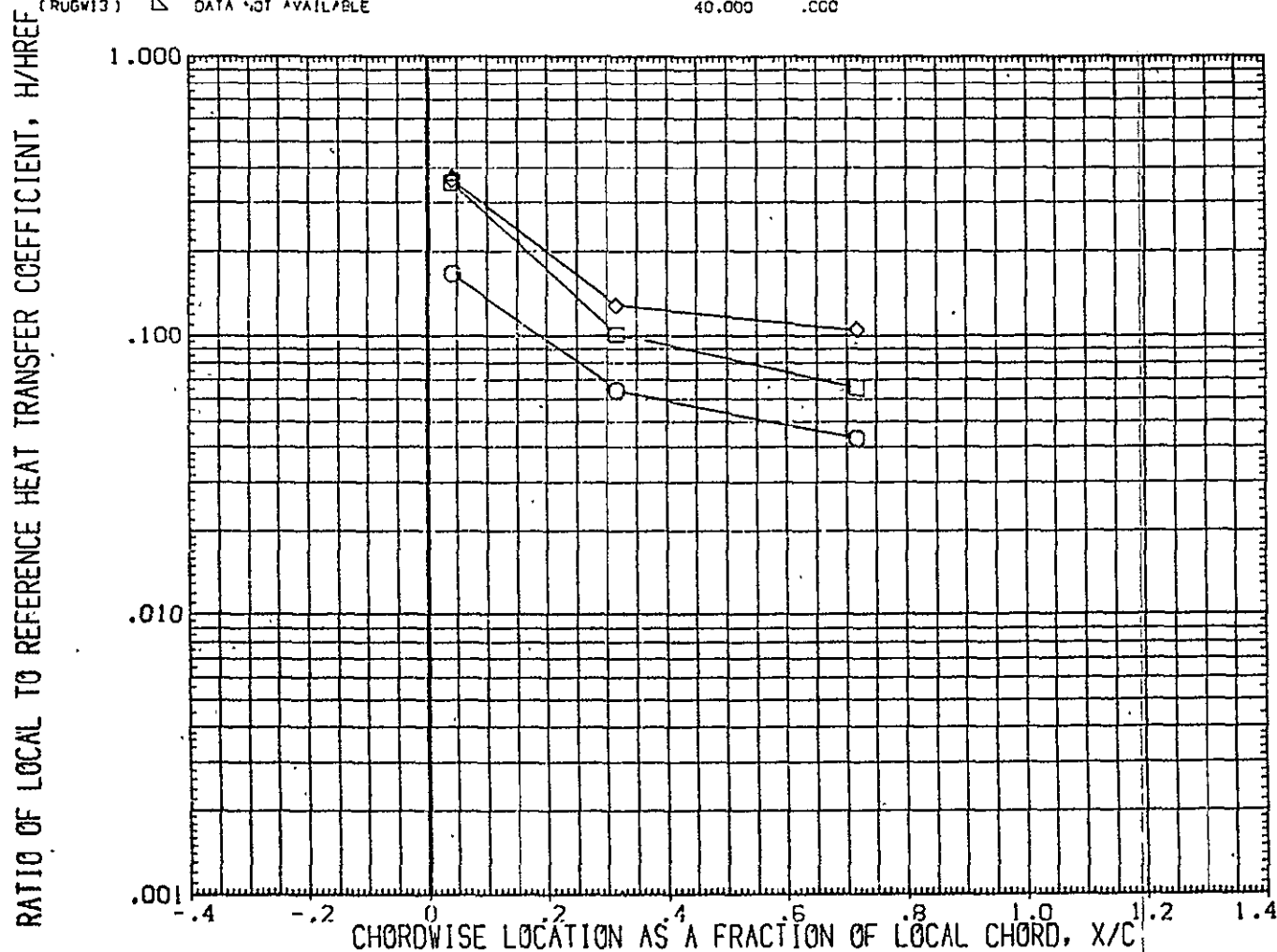


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = .900 $2Y/B = .750$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG#07)	OH12/H21 (CAL HST 173-100) 37.0 WING L.S.	.000	.000
(RUG#10)	OH12/H21 (CAL HST 173-100) 37.0 WING L.S.	25.000	.000
(RUG#11)	OH12/H21 (CAL HST 173-100) 37.0 WING L.S.	30.000	.000
(RUG#12)	OH12/H21 (CAL HST 173-100) 37.0 WING L.S.	35.000	.000
(RUG#13)	DATA NOT AVAILABLE	40.000	.000

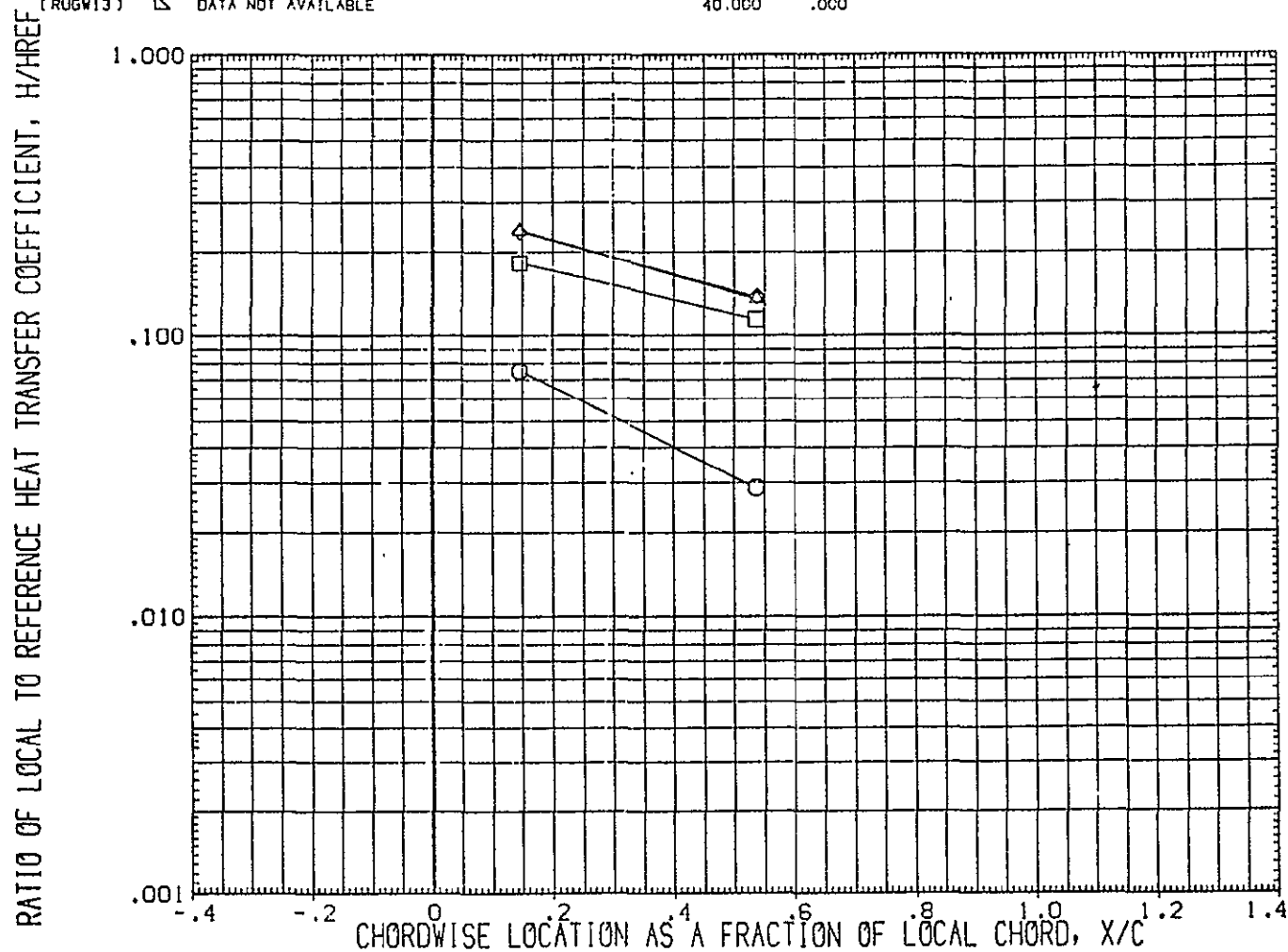


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = .900 $2Y/B$ = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OW12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	OW12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OW12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OW12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

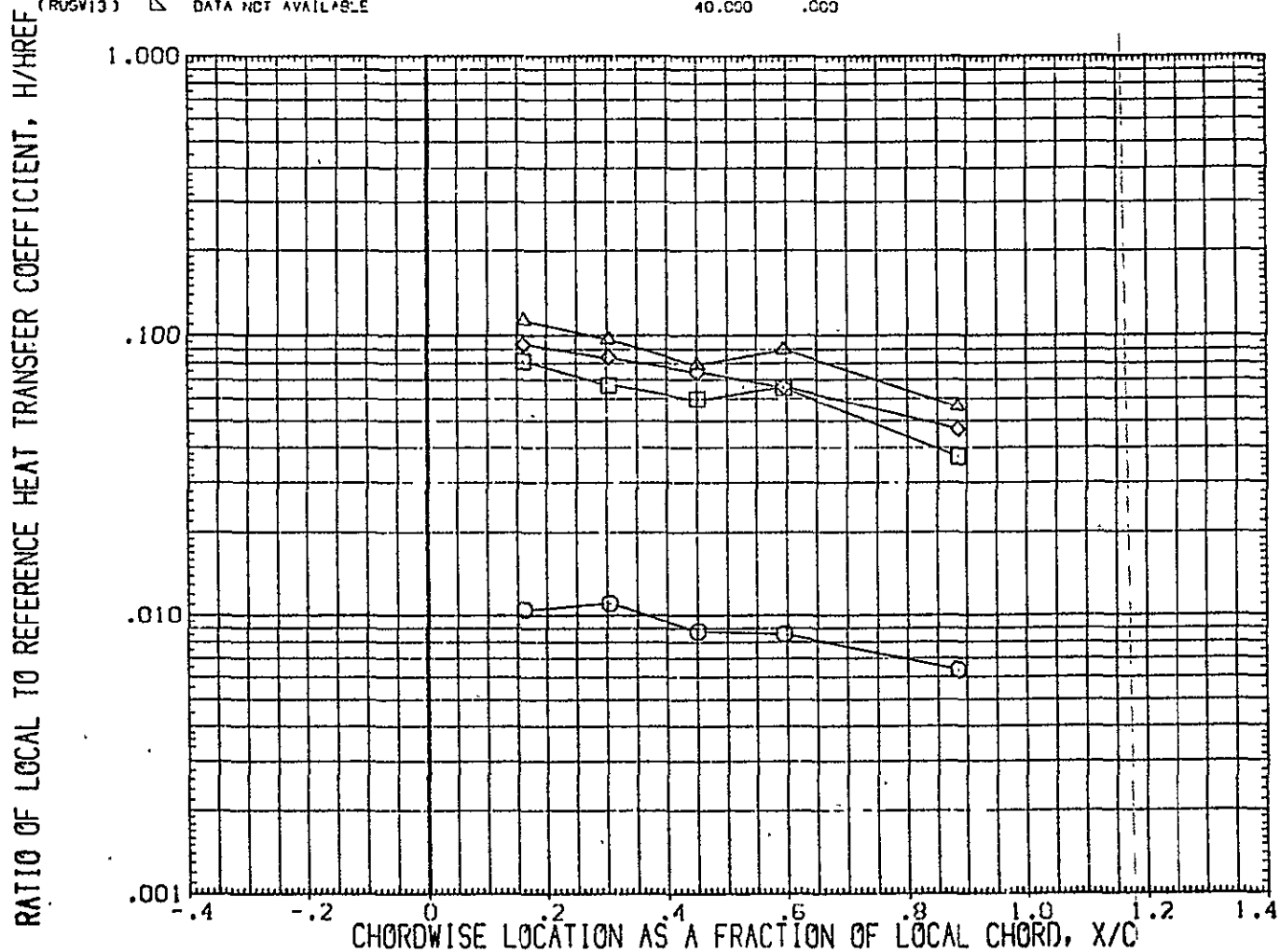


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = 1.000 $2Y/B = .250$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	0412/1H21 (CAL HST 173-100) 37 0 WING L.S.	1.000	.000
(RUGW10)	0412/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	0412/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	0412/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

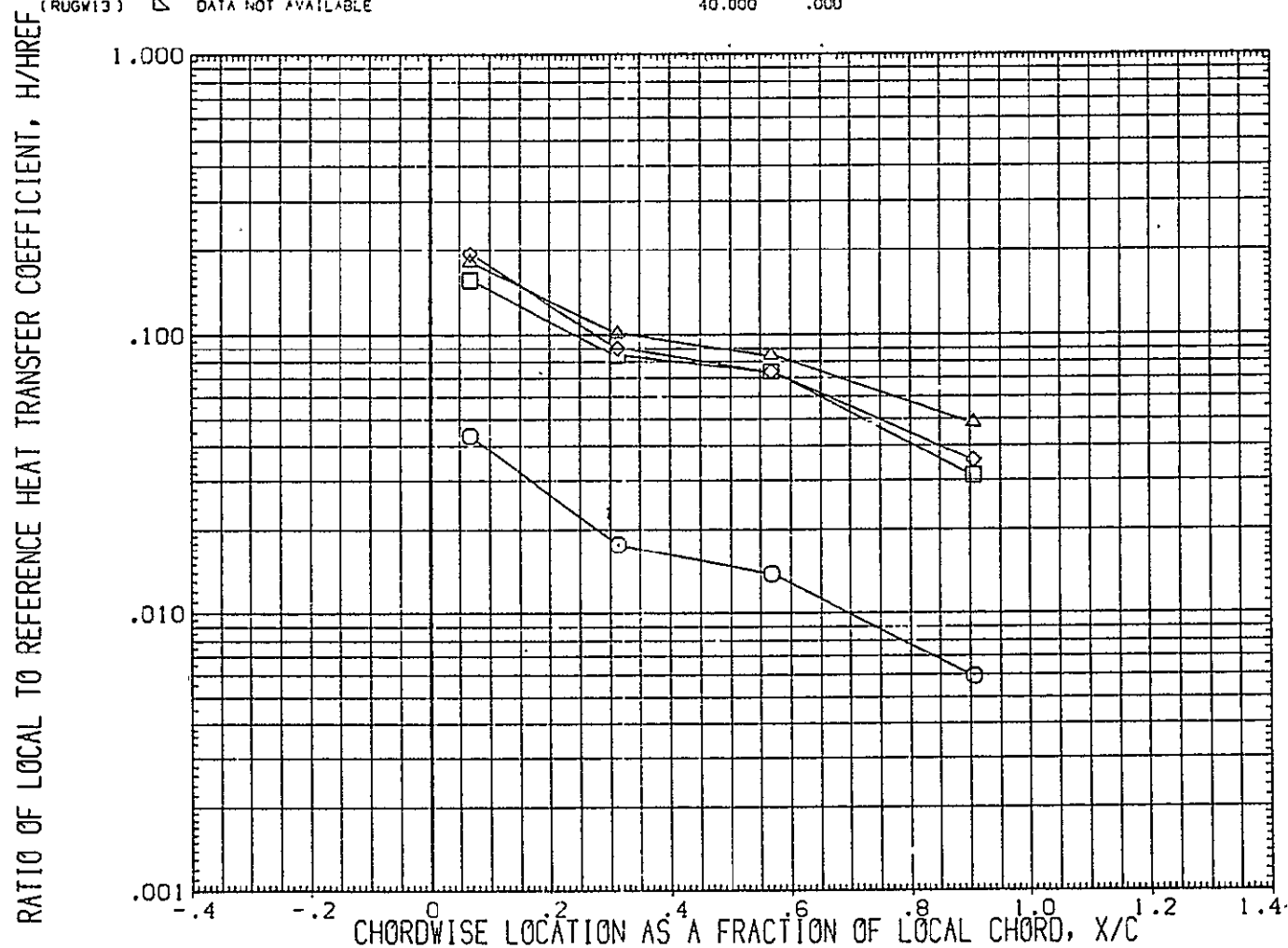


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT= 1.000 $2Y/B = .400$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

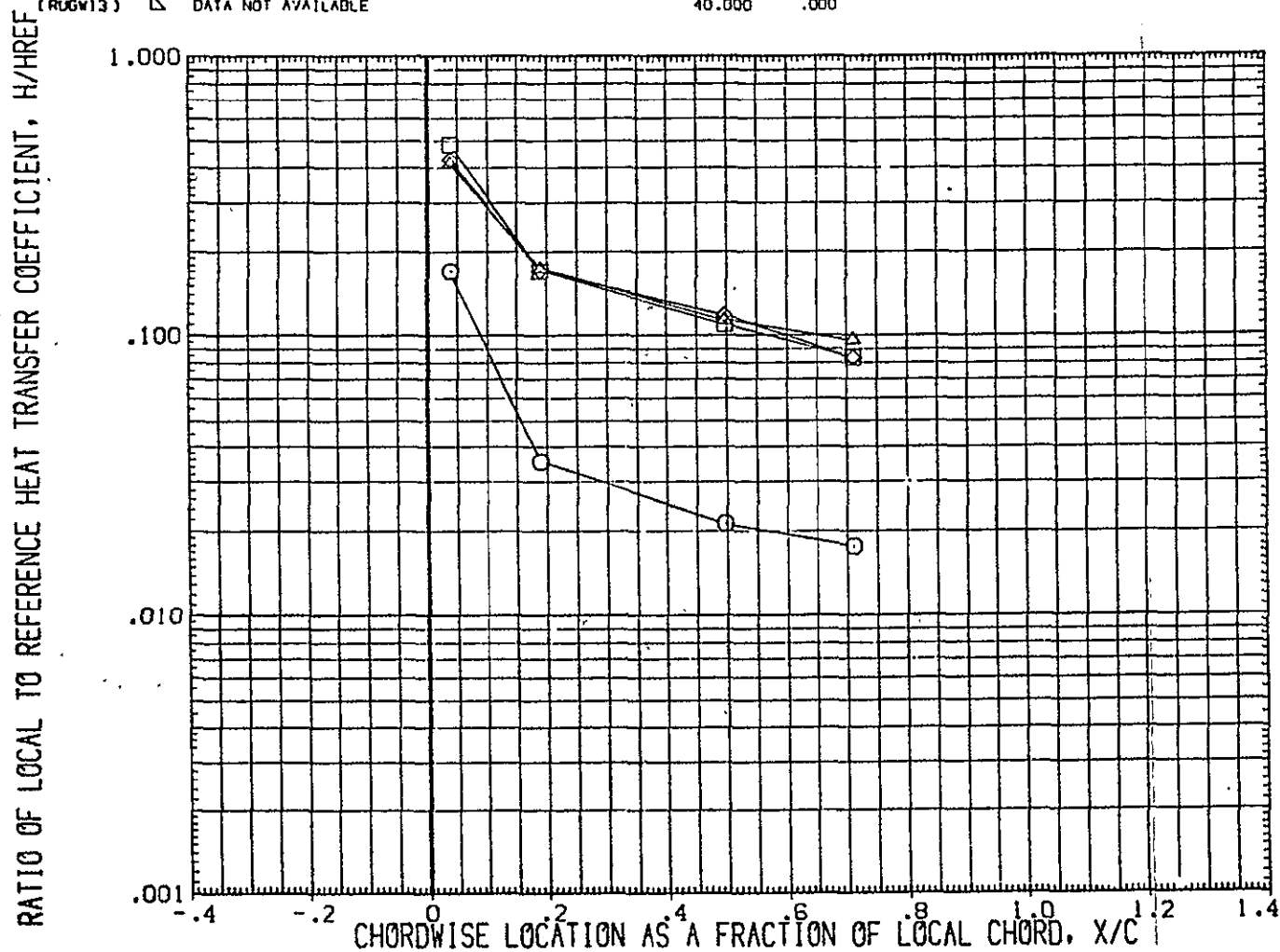


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L1

MACH = 16.000 HAW/HT= 1.000 2Y/B = .500

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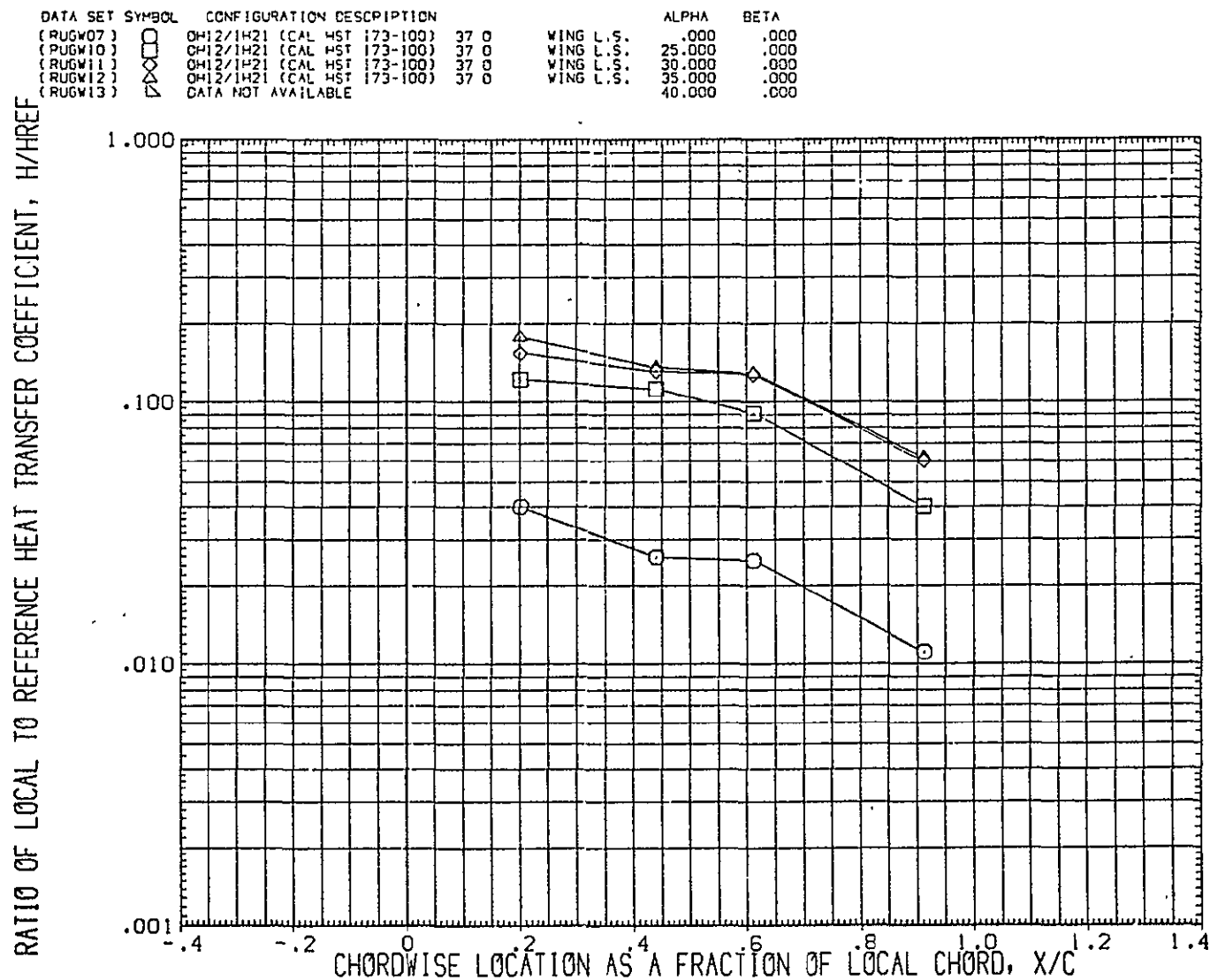


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 16.000 HAW/HT= 1.000 $2Y/B = .600$ PAGE 709

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGV10)	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV11)	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV12)	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

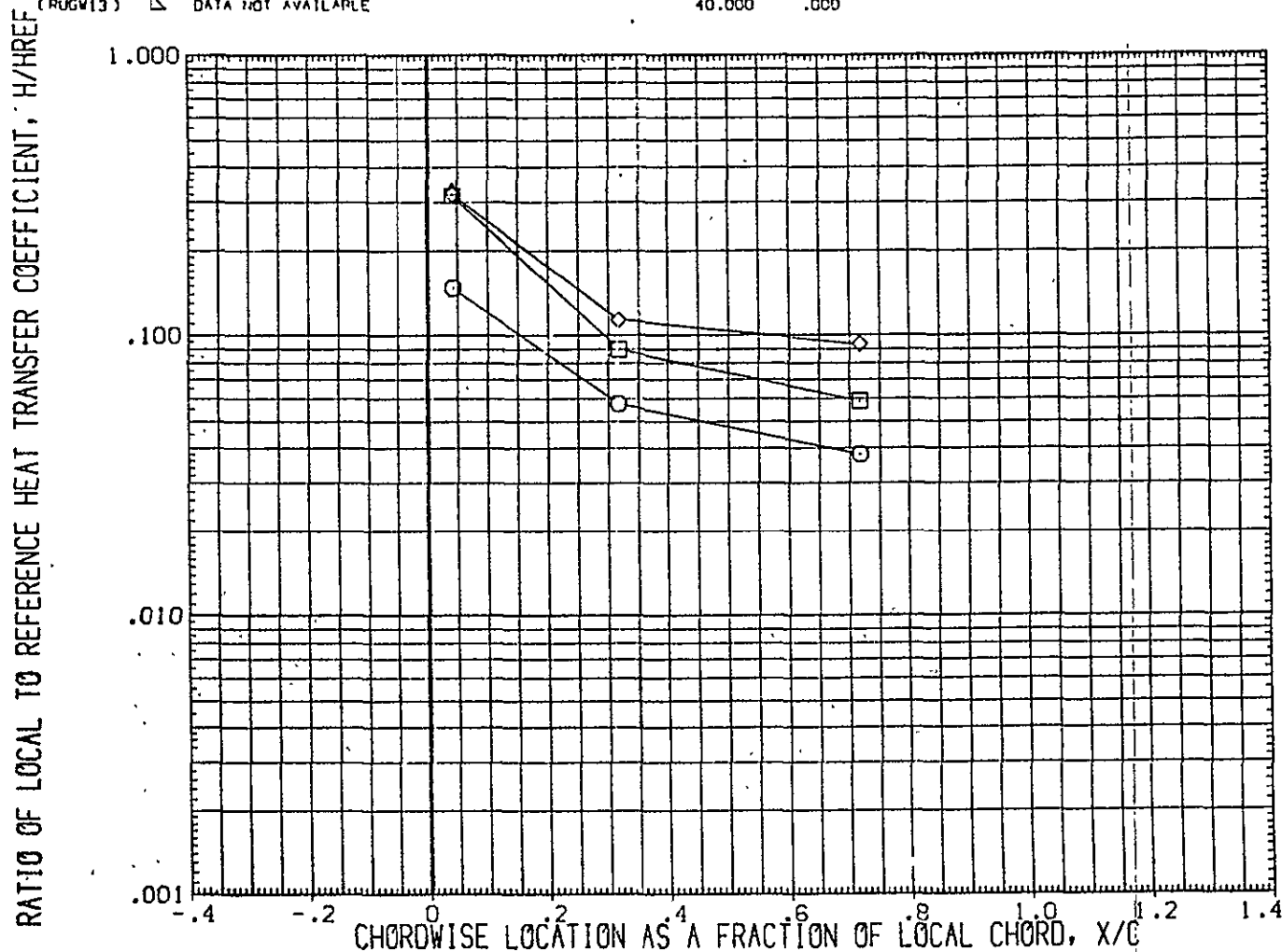


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = 1.000 $2Y/B = .750$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 WING 1.5.	.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 WING 1.5.	25.000	.000
(RUGV11)	OH12/1H21 (CAL HST 173-100) 37 0 WING 1.5.	30.000	.000
(RUGV12)	OH12/1H21 (CAL HST 173-100) 37 0 WING 1.5.	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

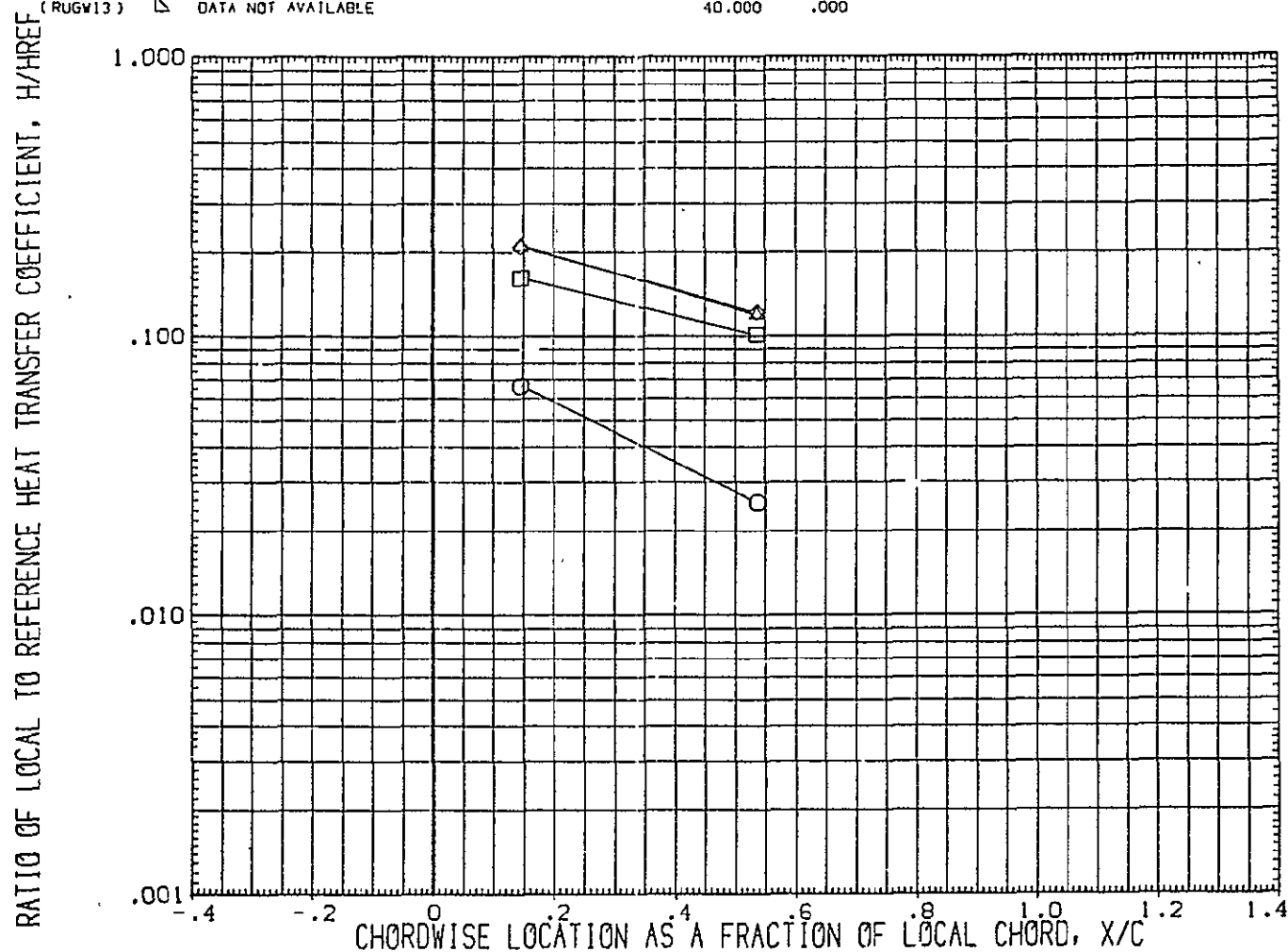


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L1
MACH = 16.000 HAW/HT = 1.000 2Y/B = .950 PAGE 711

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/TH21 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW10)	OH12/TH21 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW11)	OH12/TH21 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW12)	OH12/TH21 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUGW13)	DATA NOT AVAILABLE	WING L.S.	.000

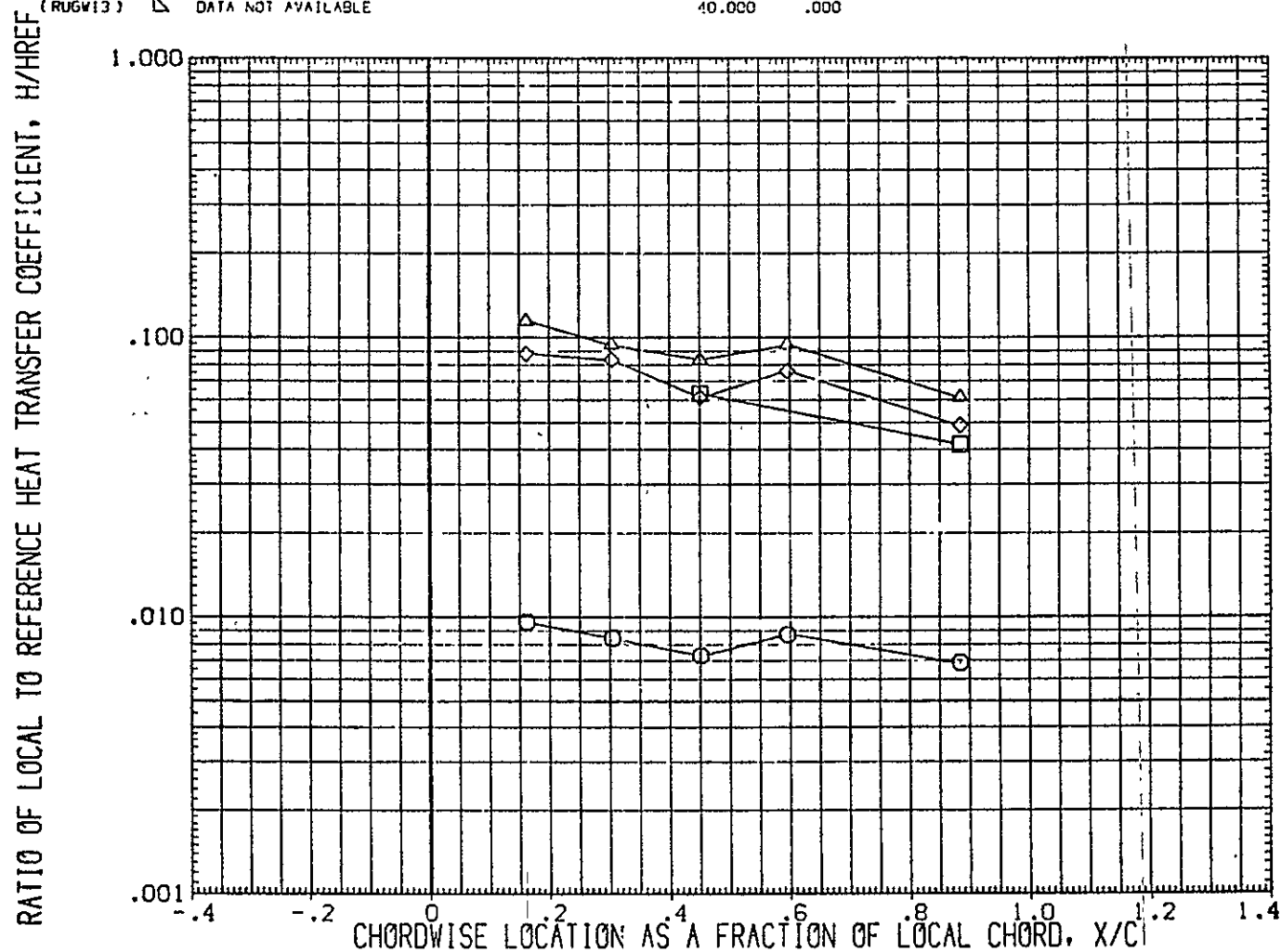


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 19.170 HAW/HT = .850 $2Y/B$ = .250

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG#07)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUG#10)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUG#11)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUG#12)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.000
(RUG#13)	DATA NOT AVAILABLE	WING L.S.	.000

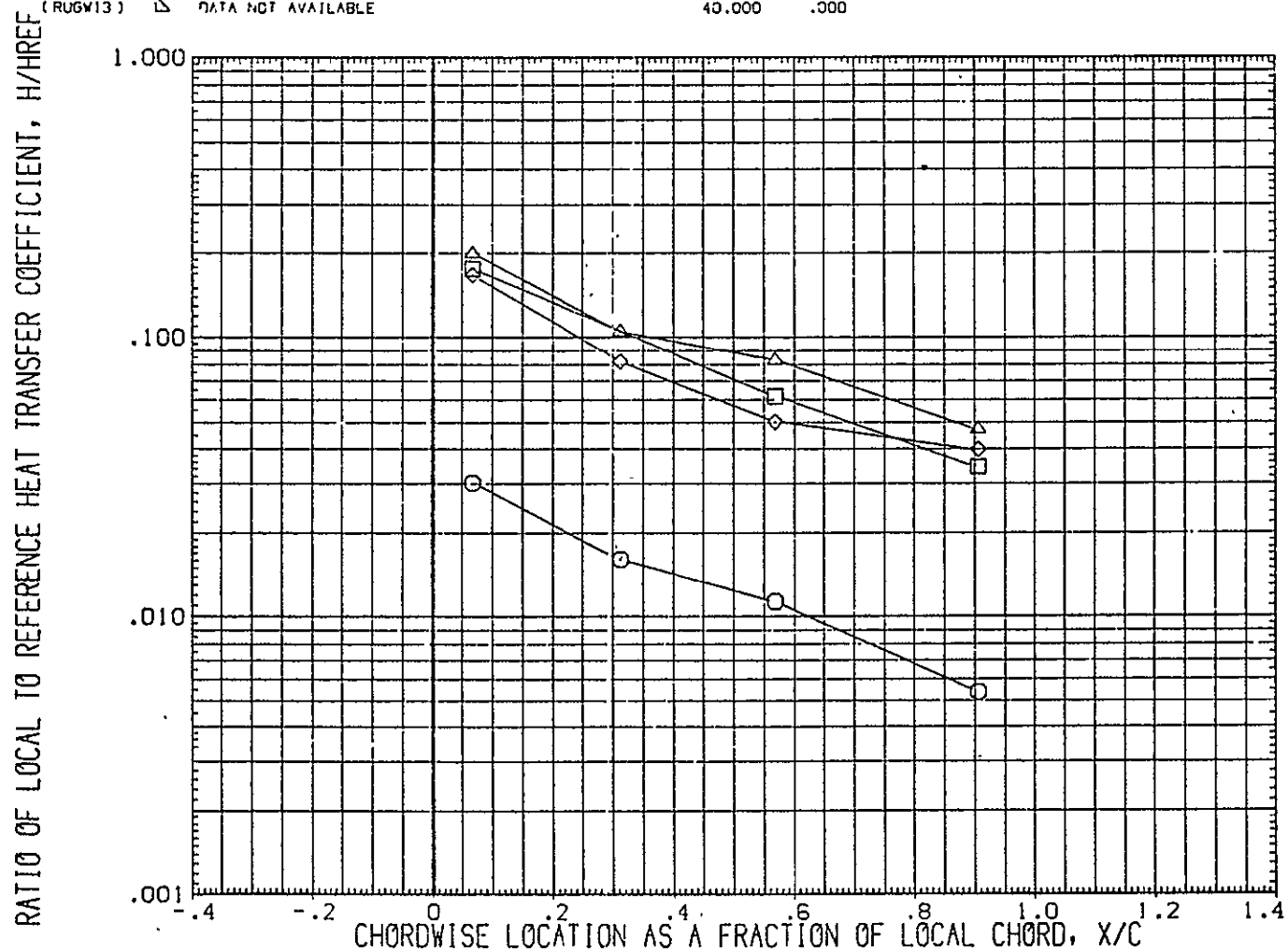


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = .850 $2Y/B$ = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG#07)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUG#10)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUG#11)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUG#12)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUG#13)	DATA NOT AVAILABLE	40.000	.000

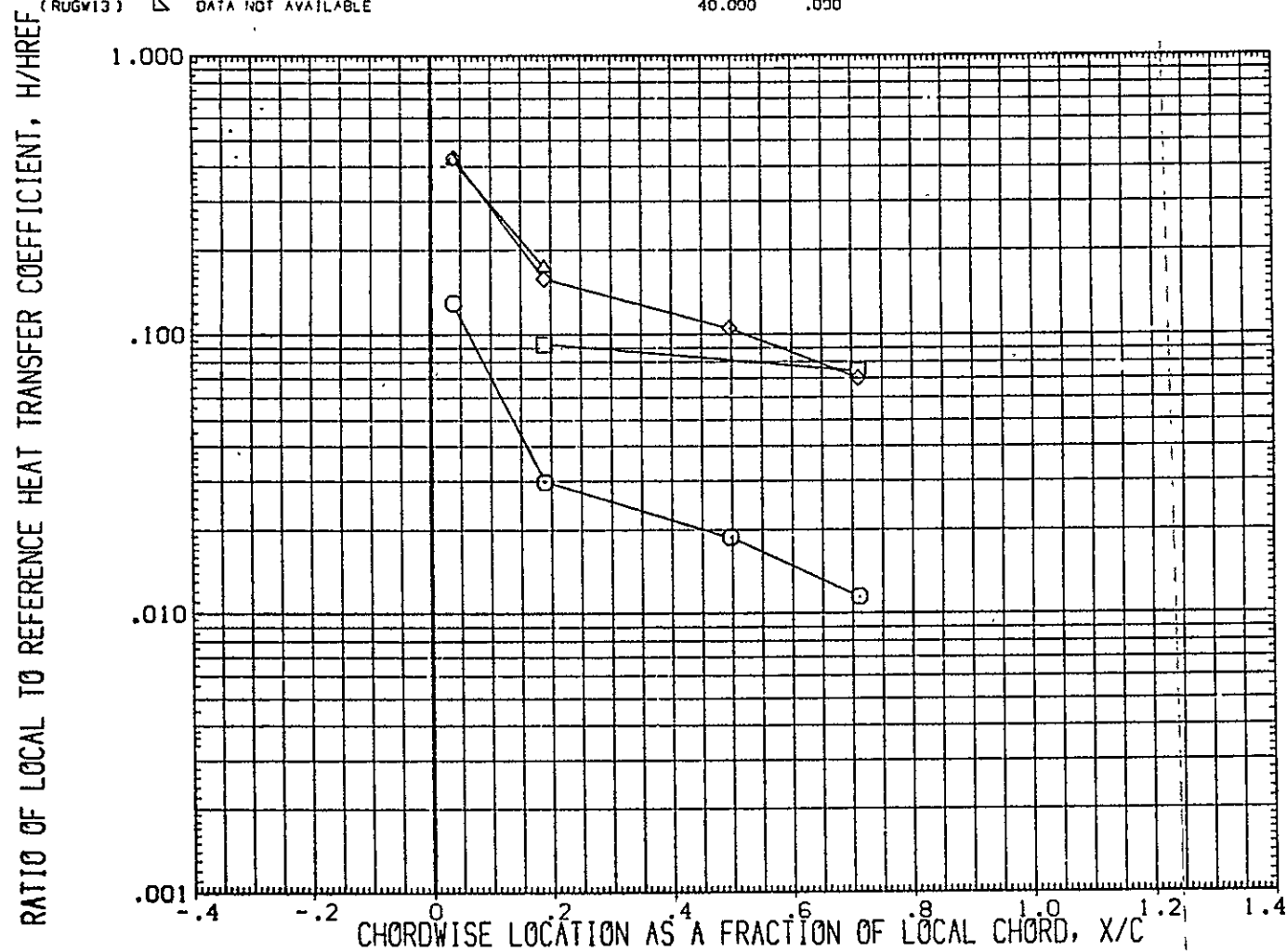


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = .850 $2Y/B$ = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S. .000 .000		
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S. 25.000 .000		
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S. 30.000 .000		
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S. 35.000 .000		
(RUGW13)	DATA NOT AVAILABLE	40.000 .000	

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

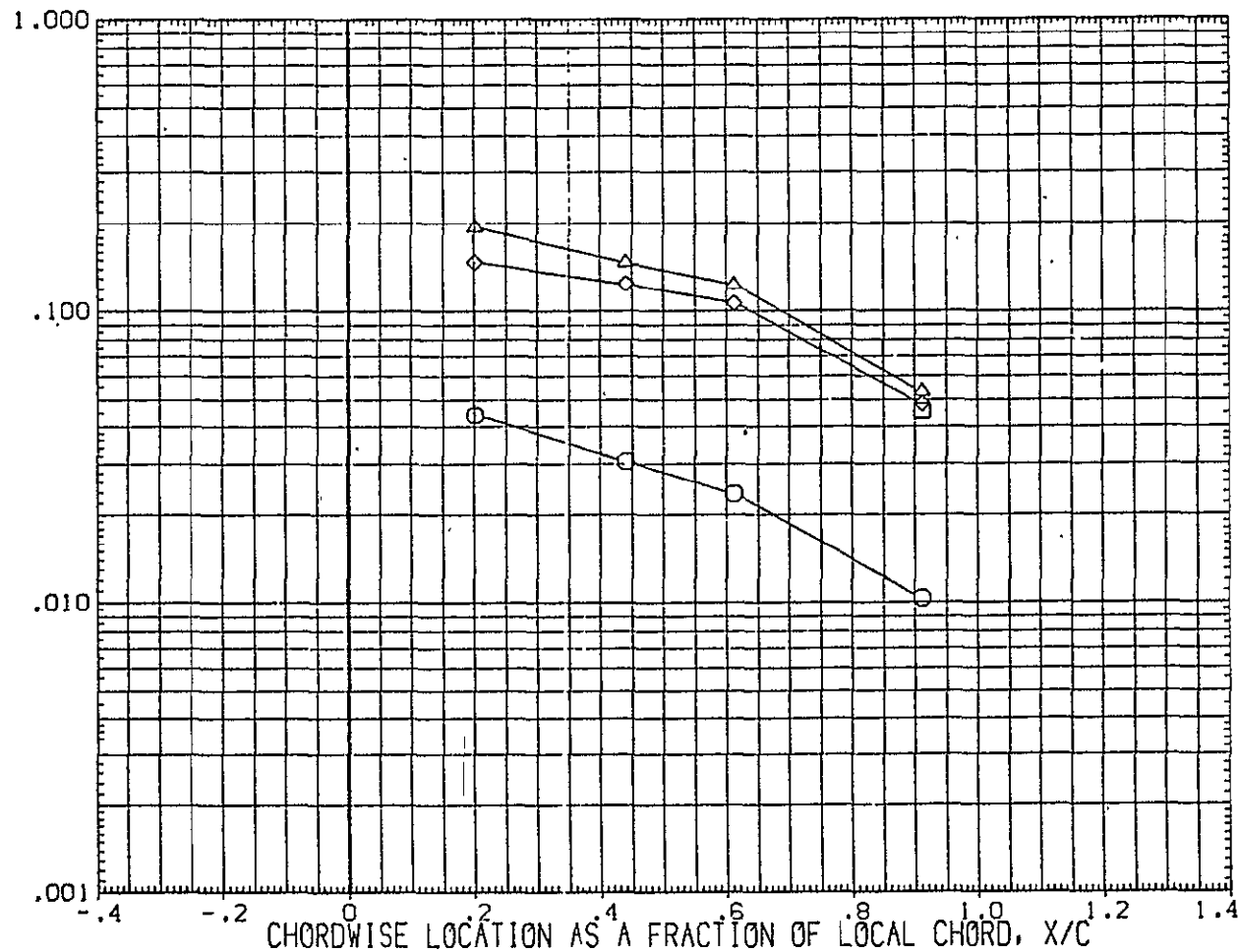


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = .850 2Y/B = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WING L.S.	ALPHA	BETA
(RUGW07)	OH12/H21 (CAL HST 173-100)	37 0	0.000	0.000
(RUGW10)	OH12/H21 (CAL HST 173-100)	37 0	25.000	0.000
(RUGW11)	OH12/H21 (CAL HST 173-100)	37 0	30.000	0.000
(RUGW12)	OH12/H21 (CAL HST 173-100)	37 0	35.000	0.000
(RUGW13)	DATA NOT AVAILABLE		40.000	0.000

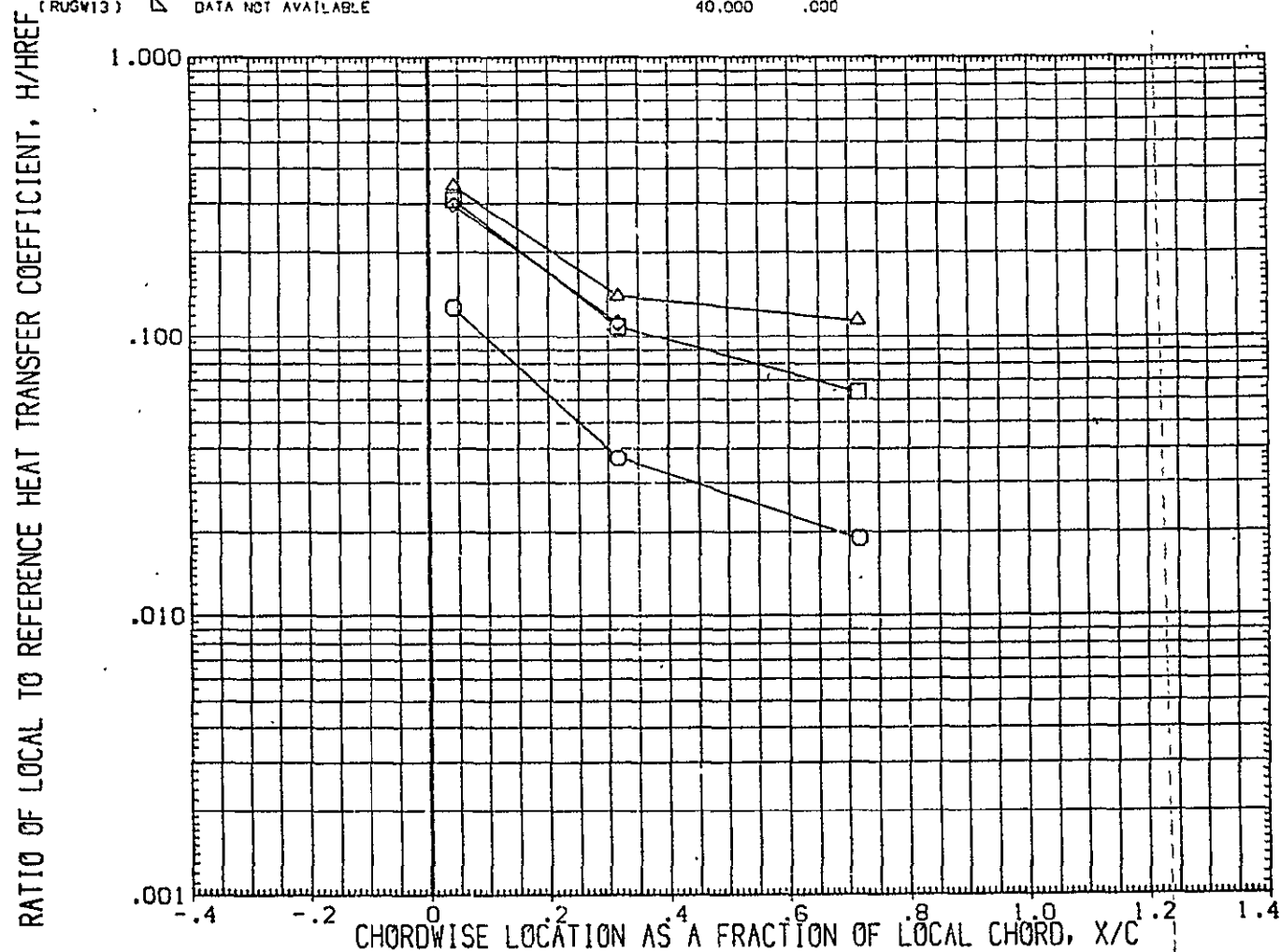


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = .850 $2Y/B$ = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

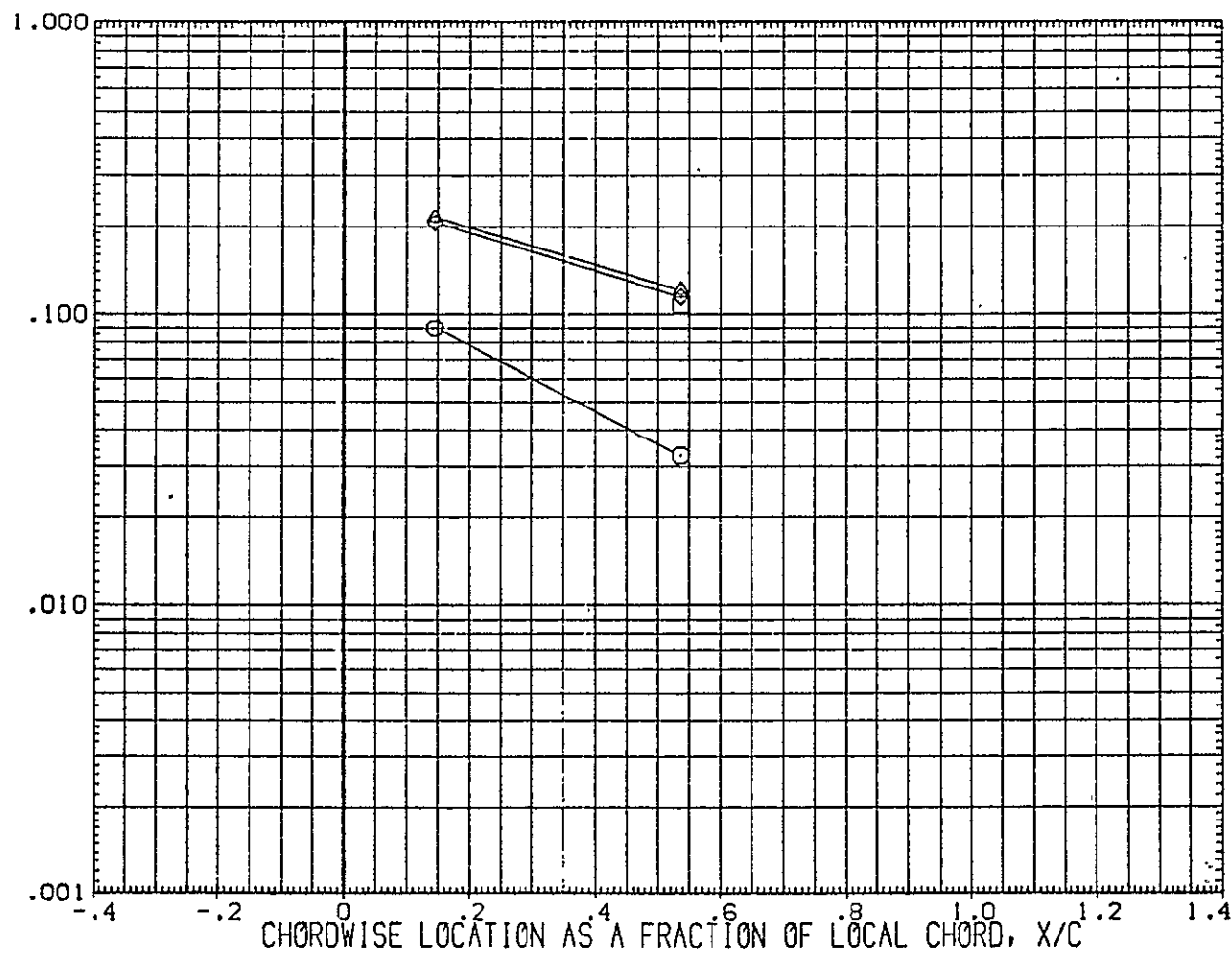


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = .850 2Y/B = .950

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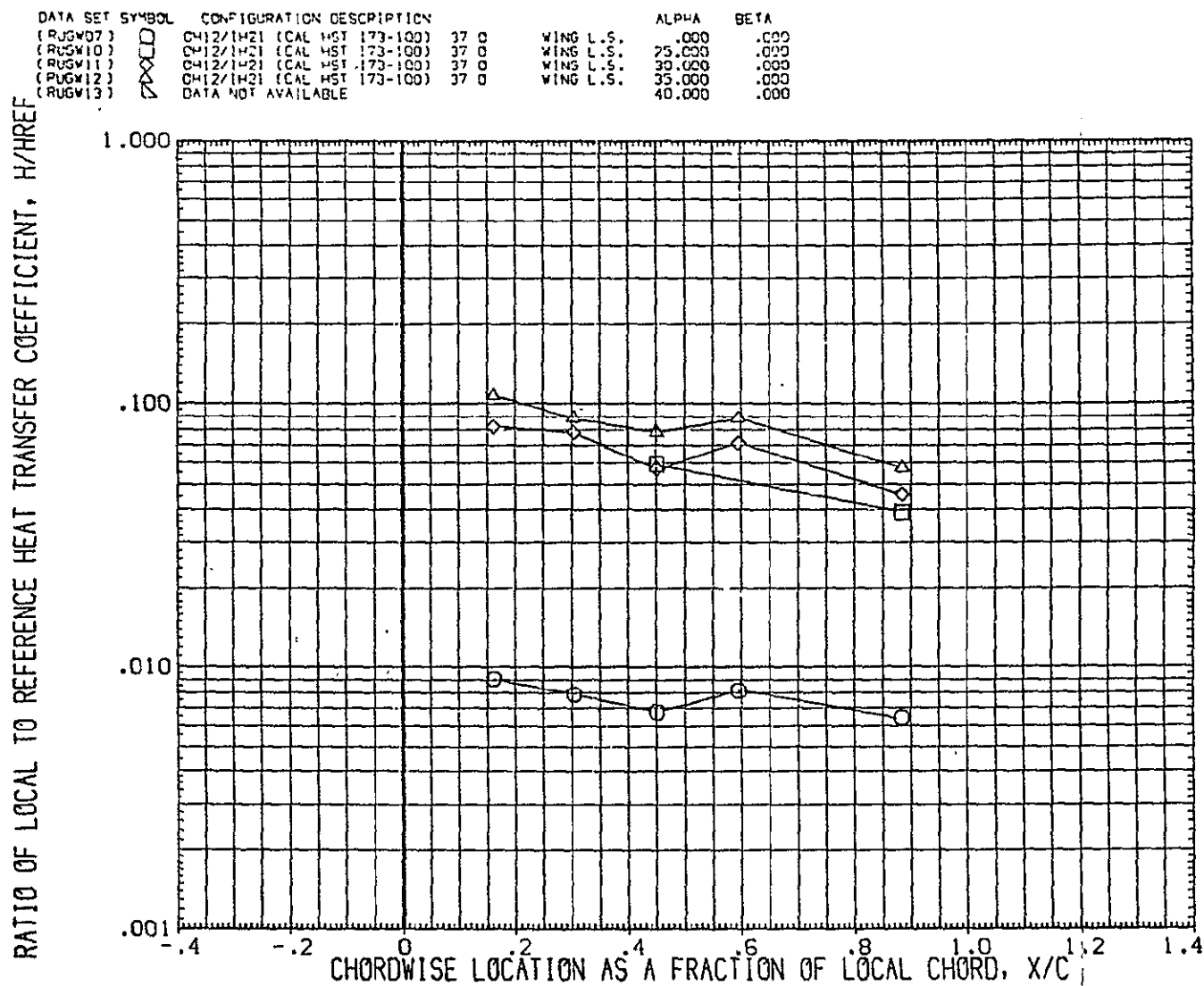


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 19.170 HAW/HT = .900 $2Y/B$ = .250 PAGE 718

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	○	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	□	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	△	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	◇	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	▽	DATA NOT AVAILABLE	40.000	.000

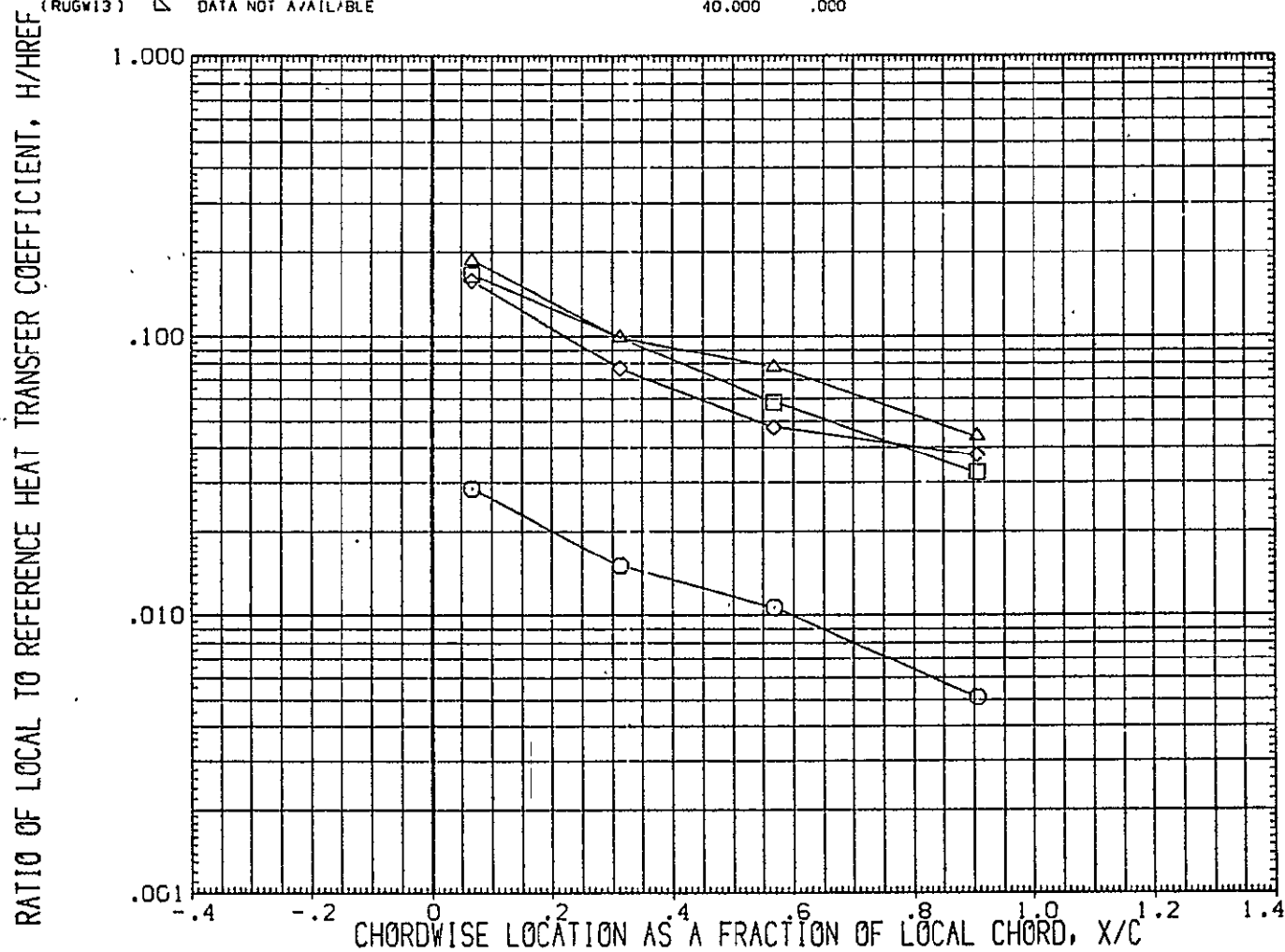


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = .900 $2Y/B$ = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

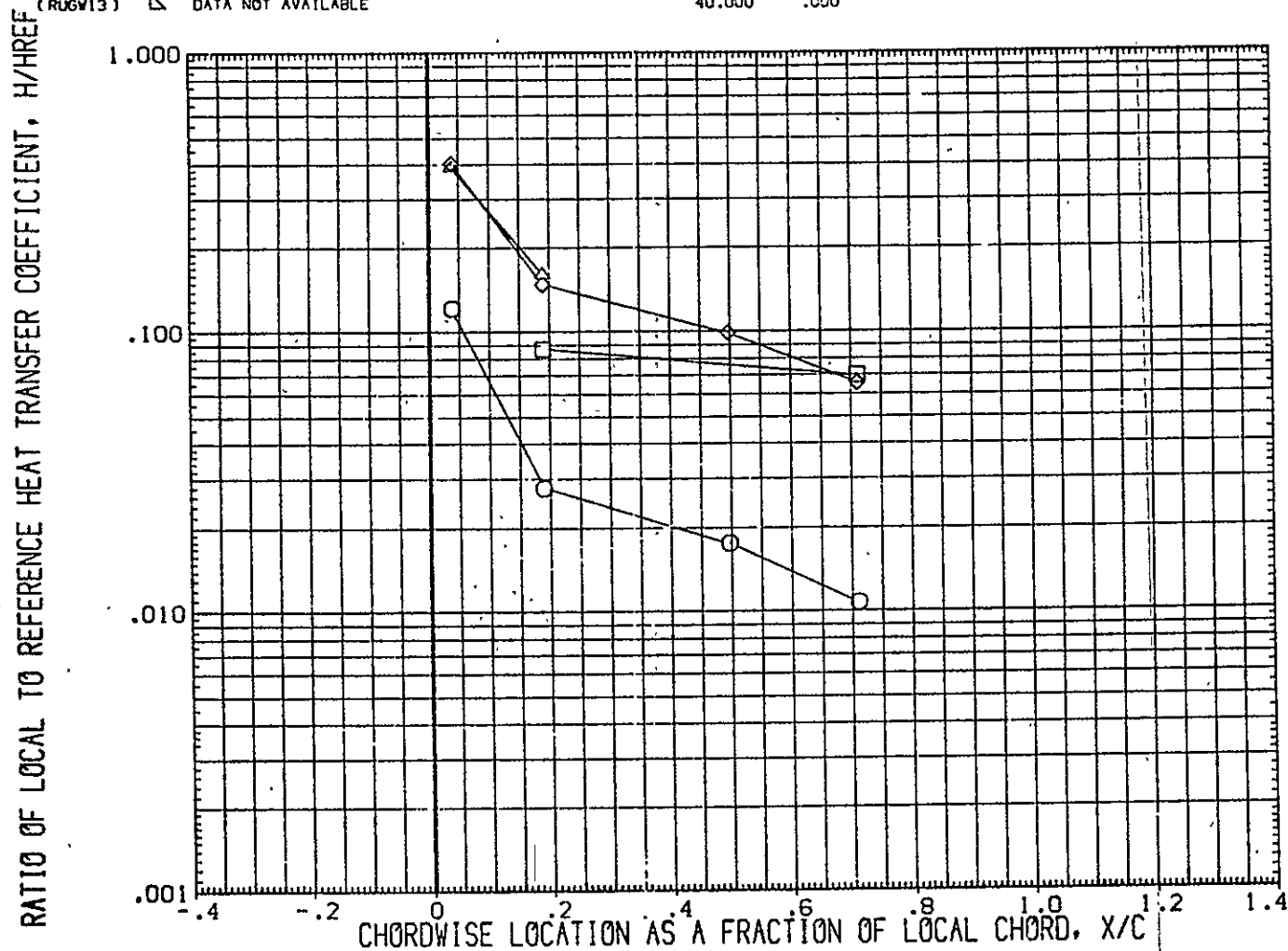


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = .900 $2Y/B$ = .500

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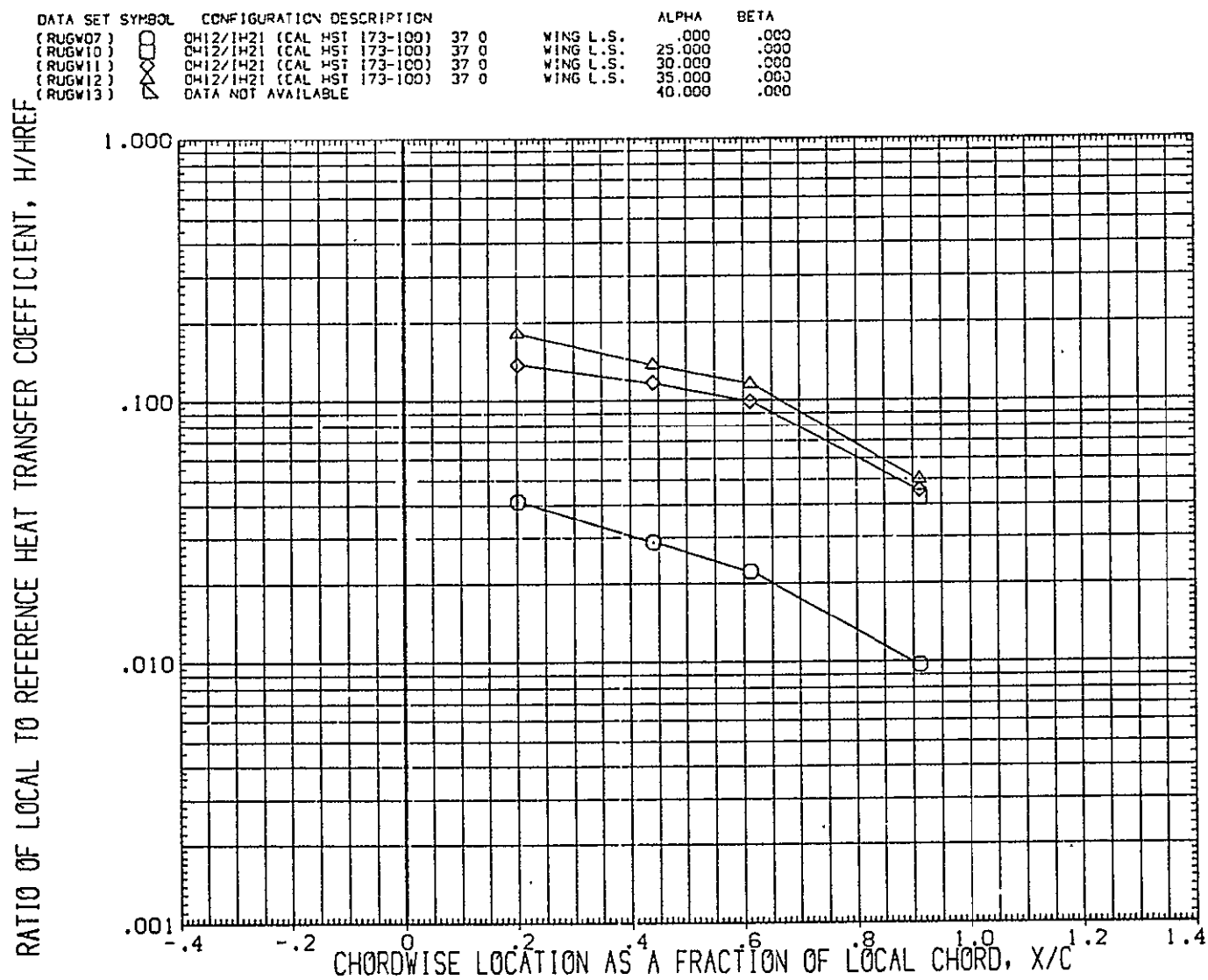


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 19.170 HAW/HT = .900 $2Y/B$ = .600 PAGE 721

5.D

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

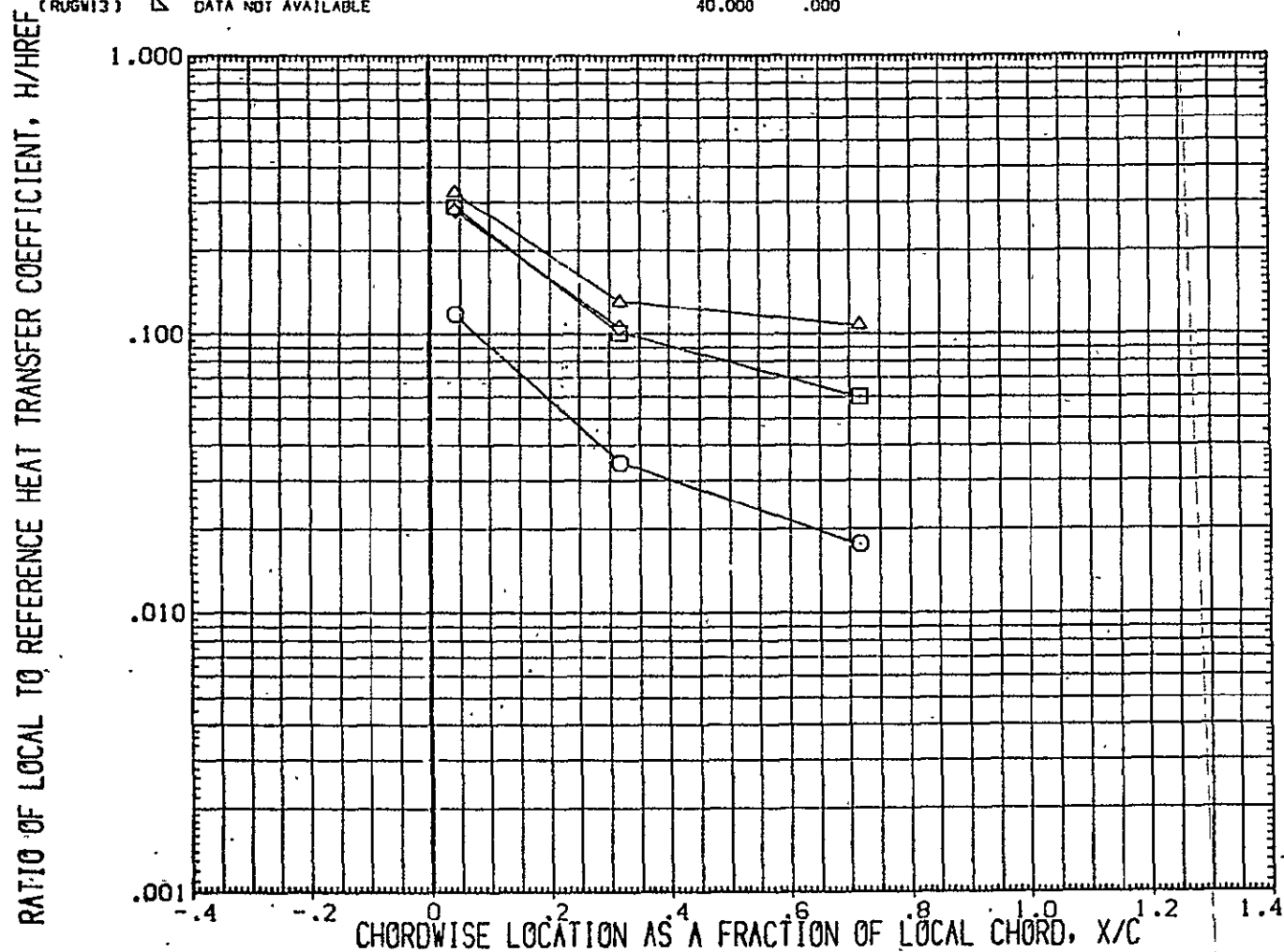


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = .900 $2Y/B$ = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGWC7)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

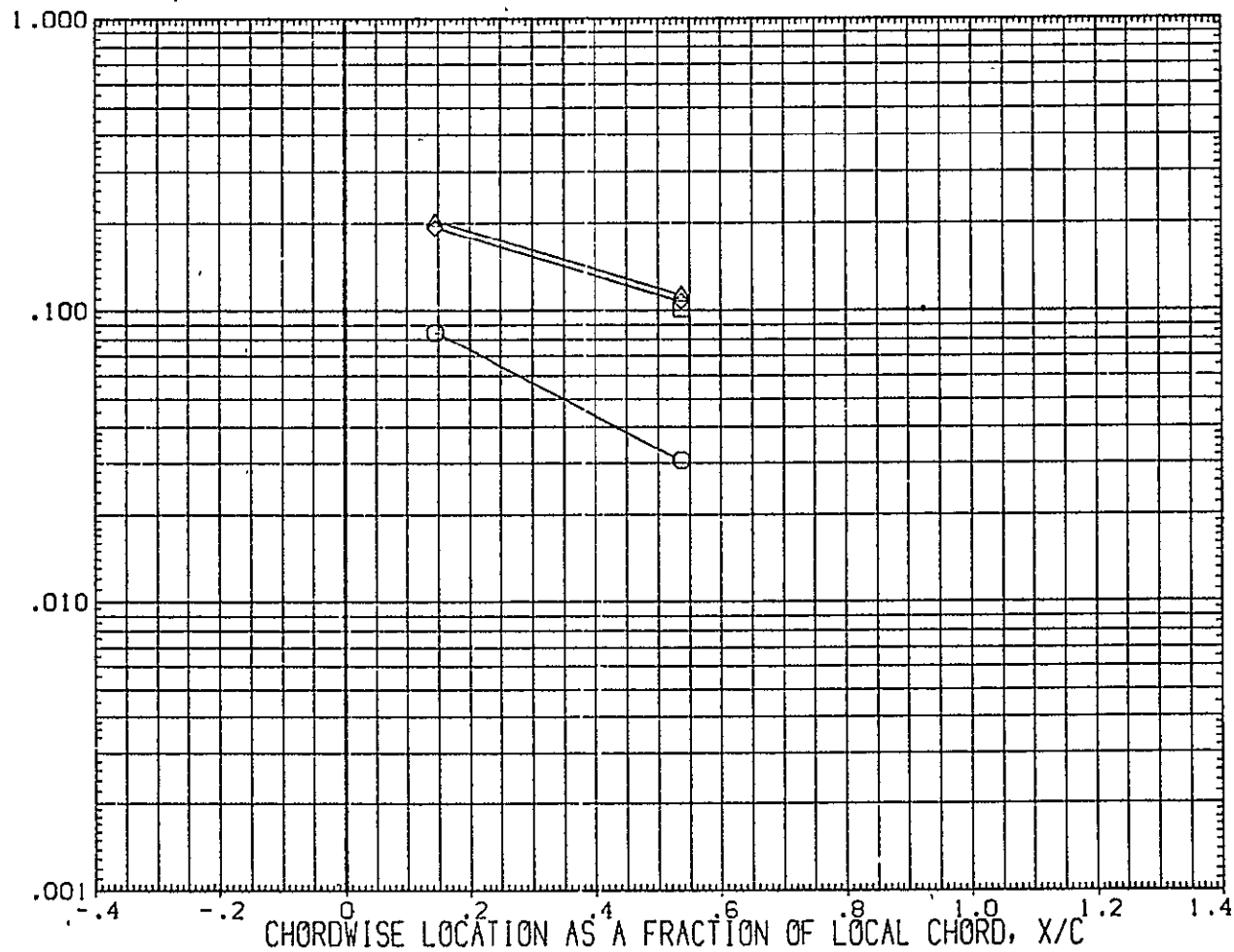


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = .900 $2Y/B$ = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGV10)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV11)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV12)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

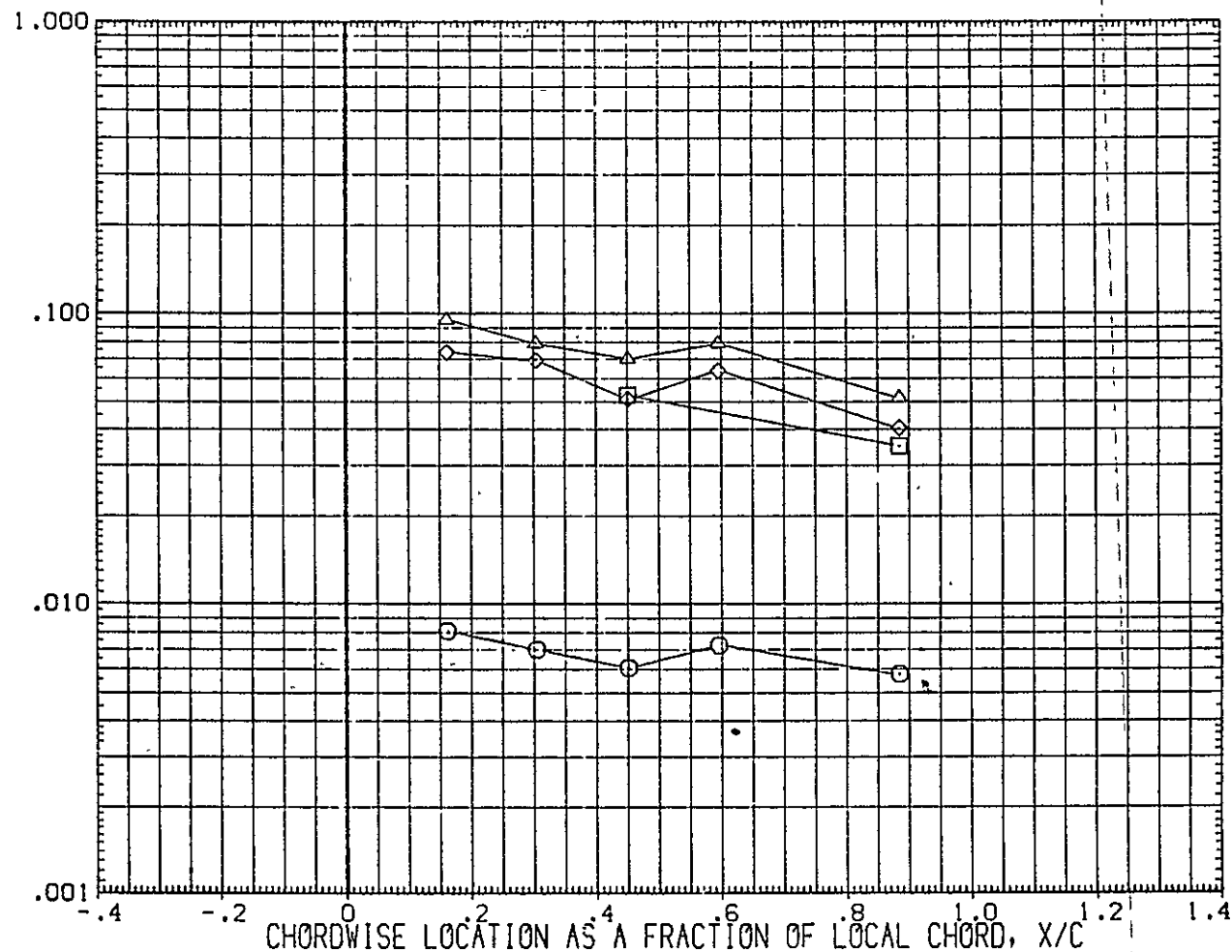


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = 1.000 2Y/B = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

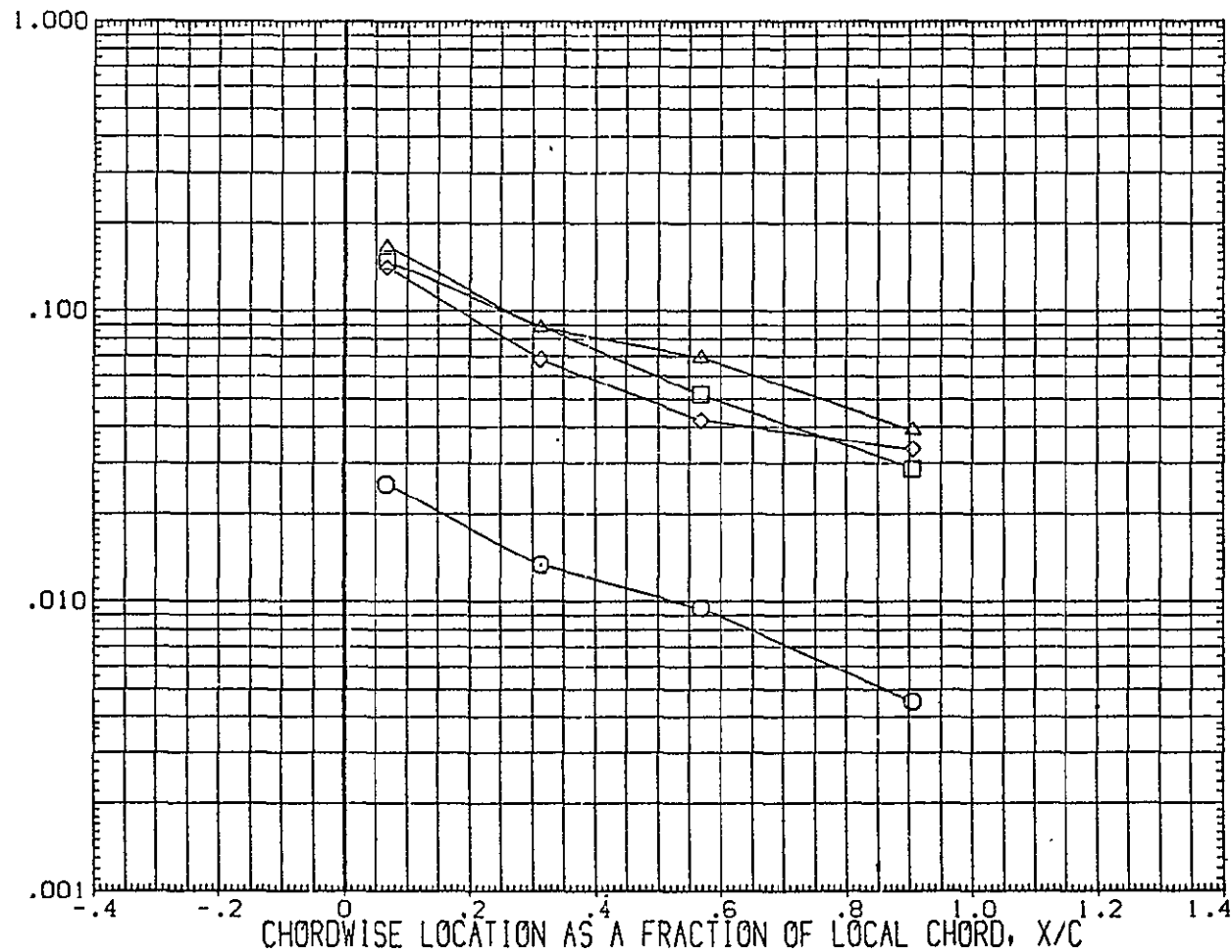


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = 1.000 $2Y/B = .400$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	SE °A
(RUGW07)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
(RUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
(RUGW13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/HREF

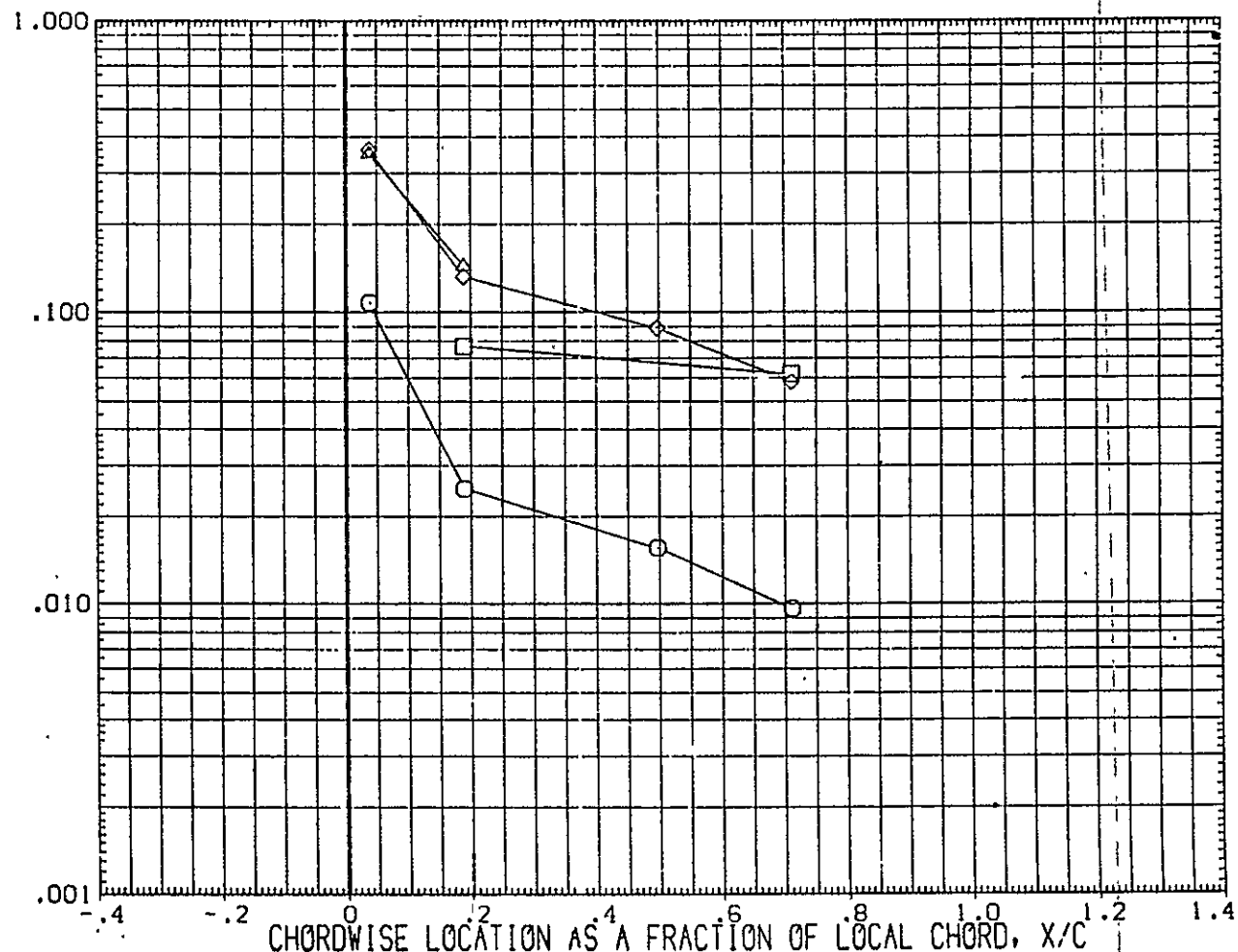


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$
MACH = 19.170 HAW/HT= 1.000 2Y/B = .500 PAGE 726

DATA SET SYMBOL	CONFIGURATION DESCRIPTION			ALPHA	BETA
(RUG#07)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.000	.000
(RUG#10)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	25.000	.000
(RUG#11)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	30.000	.000
(RUG#12)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	35.000	.000
(RUG#13)	DATA NOT AVAILABLE			40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

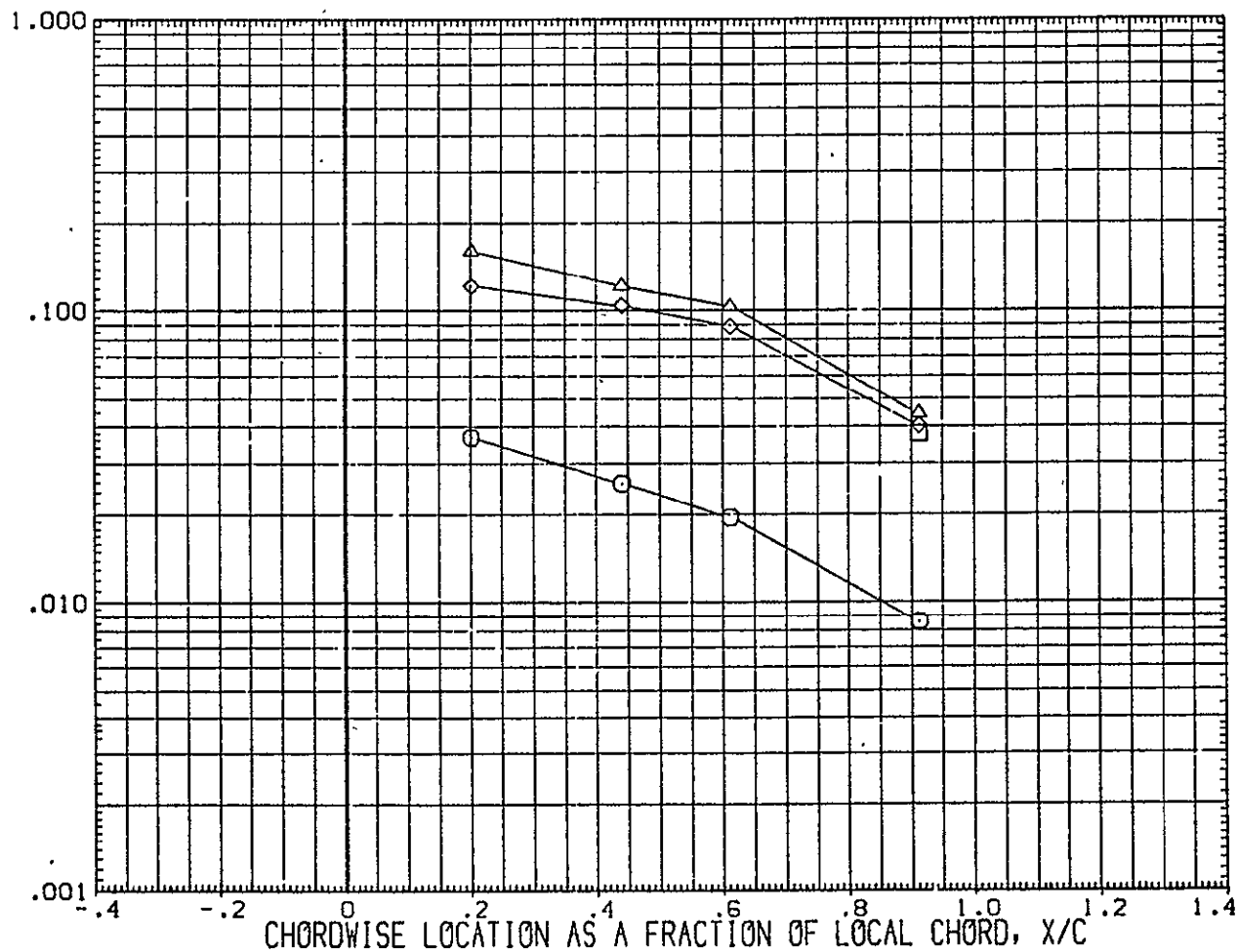


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = 1.000 2Y/B = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WING L.S.	ALPHA	BETA
(RUGW07)	CH12/1421 (CAL HST 173-100) 37 0	WING L.S.	25.000	.000
(RUGW10)	CH12/1421 (CAL HST 173-100) 37 0	WING L.S.	30.000	.000
(RUGW11)	CH12/1421 (CAL HST 173-100) 37 0	WING L.S.	35.000	.000
(RUGW12)	CH12/1421 (CAL HST 173-100) 37 0	WING L.S.	40.000	.000
(RUGW13)	DATA NOT AVAILABLE			

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

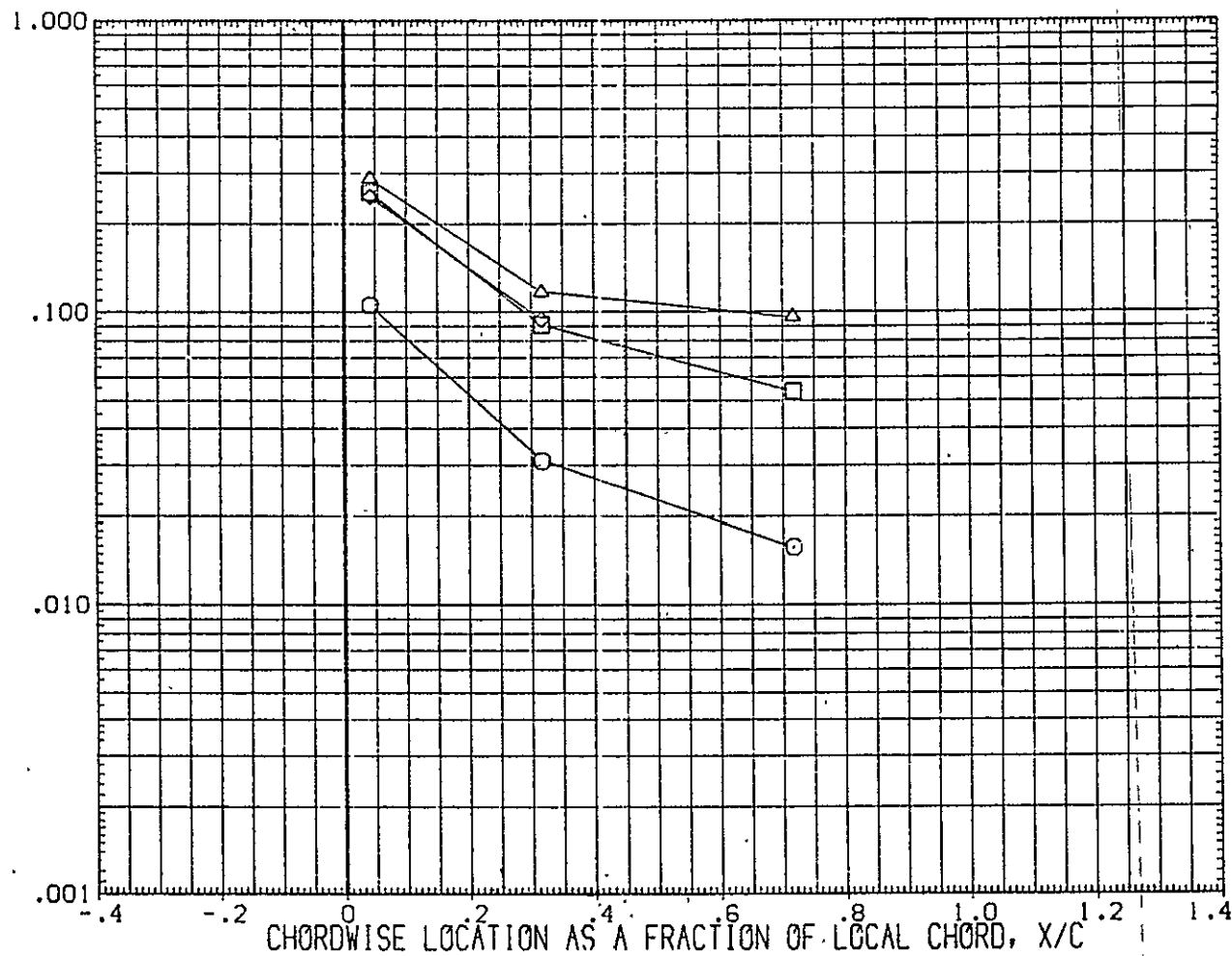


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = 1.000 2Y/B = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
RUGV07	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.000	.000
RUGV10	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
RUGV11	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
RUGV12	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000
RUGV13	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

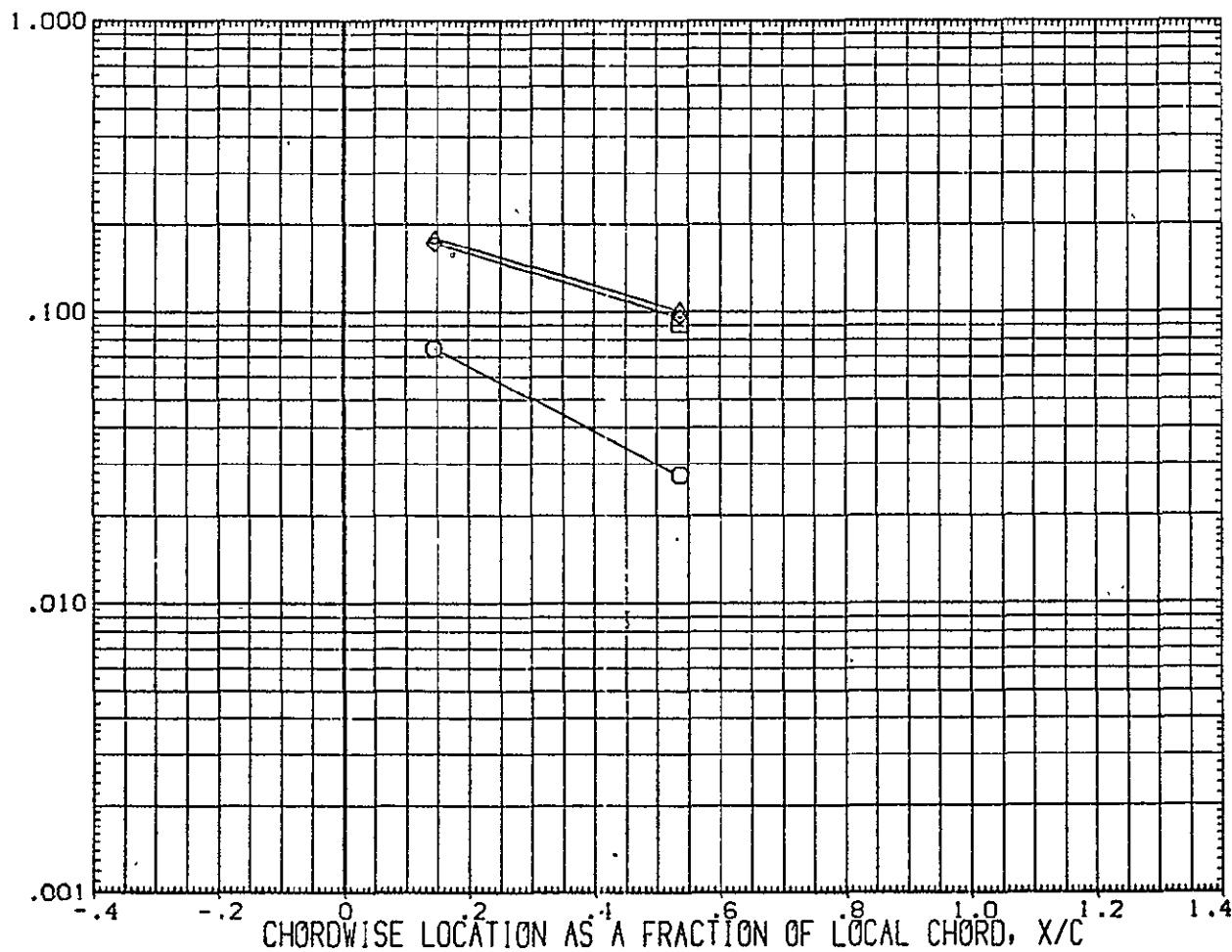


FIG. 22 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = 1.000 $2Y/B$ = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	SE * A
(RUGV07)	CH12/1H21 (CAL PST 173-100) 37 0 VERTICAL	.000	.000
(RUGV10)	CH12/1H21 (CAL PST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV11)	CH12/1H21 (CAL PST 173-100) 37 0 VERTICAL	30.000	.000
(RUGV12)	CH12/1H21 (CAL PST 173-100) 37 0 VERTICAL	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

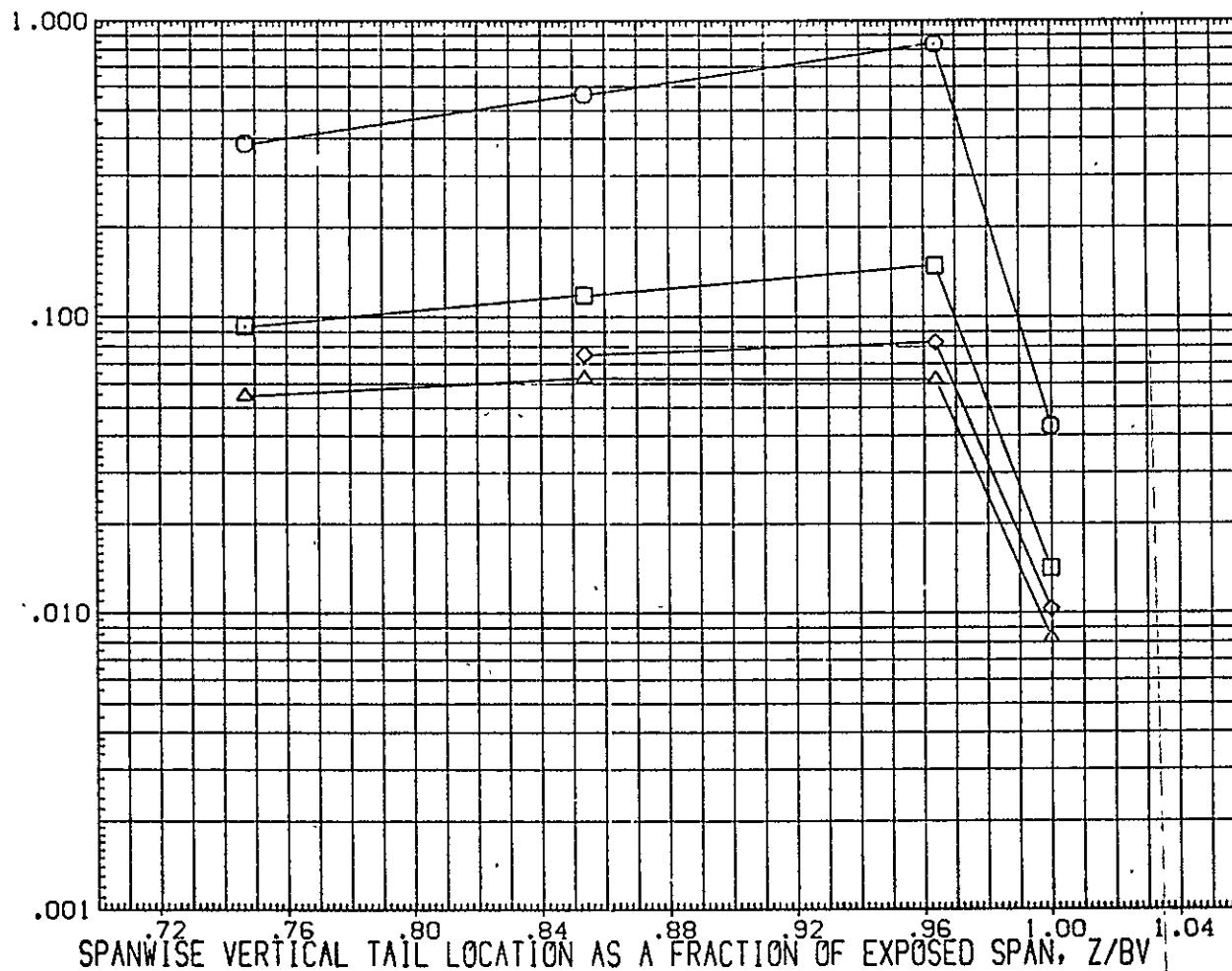


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 7.000 HAW/HT = .850 GAGENO = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV11)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	30.000	.000
(RUGV12)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

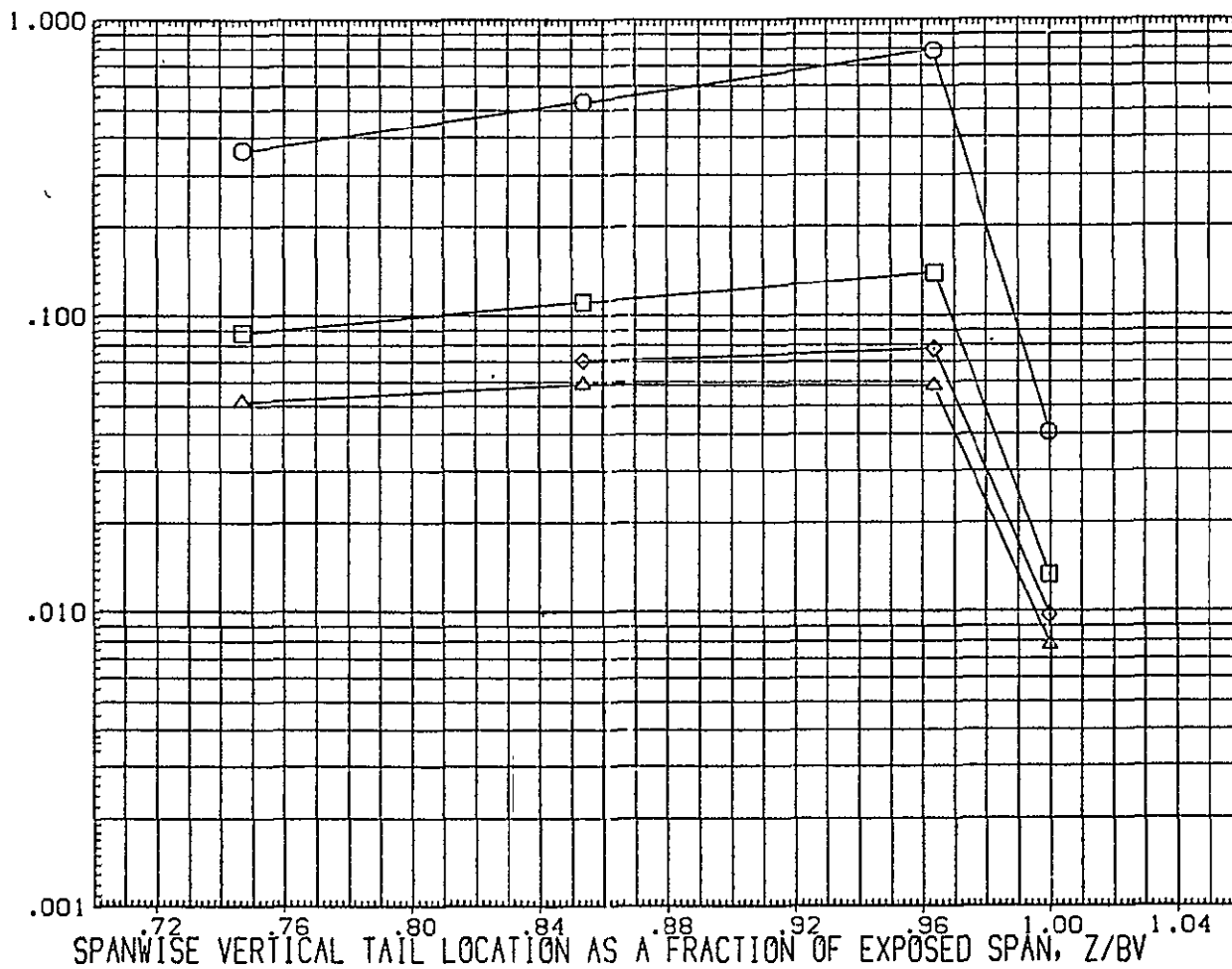


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 7.000 \ HAW/HT = .900 GAGENO = 40.000

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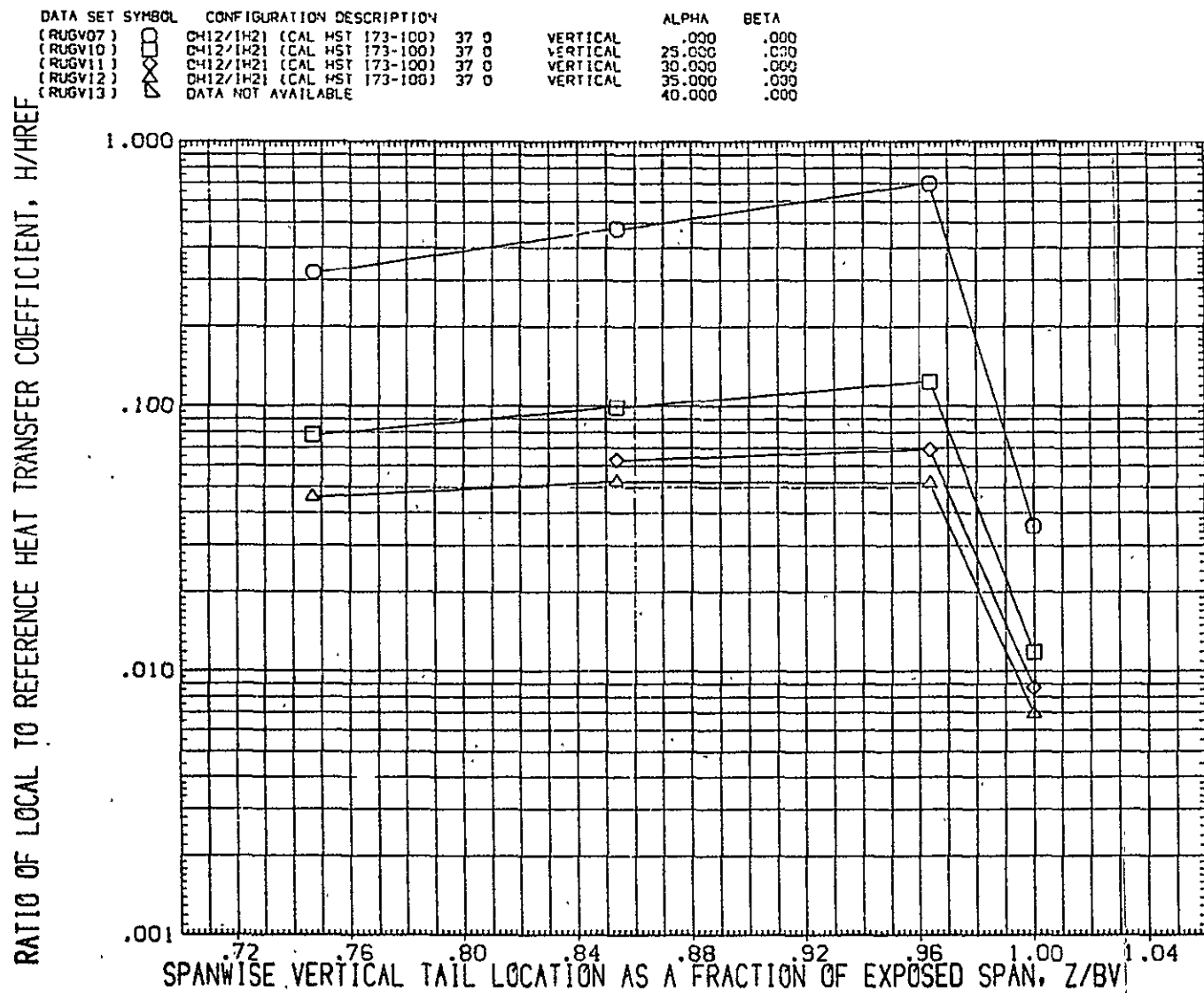


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$
MACH = 7.000 HAW/HT= 1.000 GAGENO= 40.000 PAGE 732

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.003
(RUGV10)	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV11)	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	30.000	.000
(RUGV12)	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	35.000	.000
(RUGV13)	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

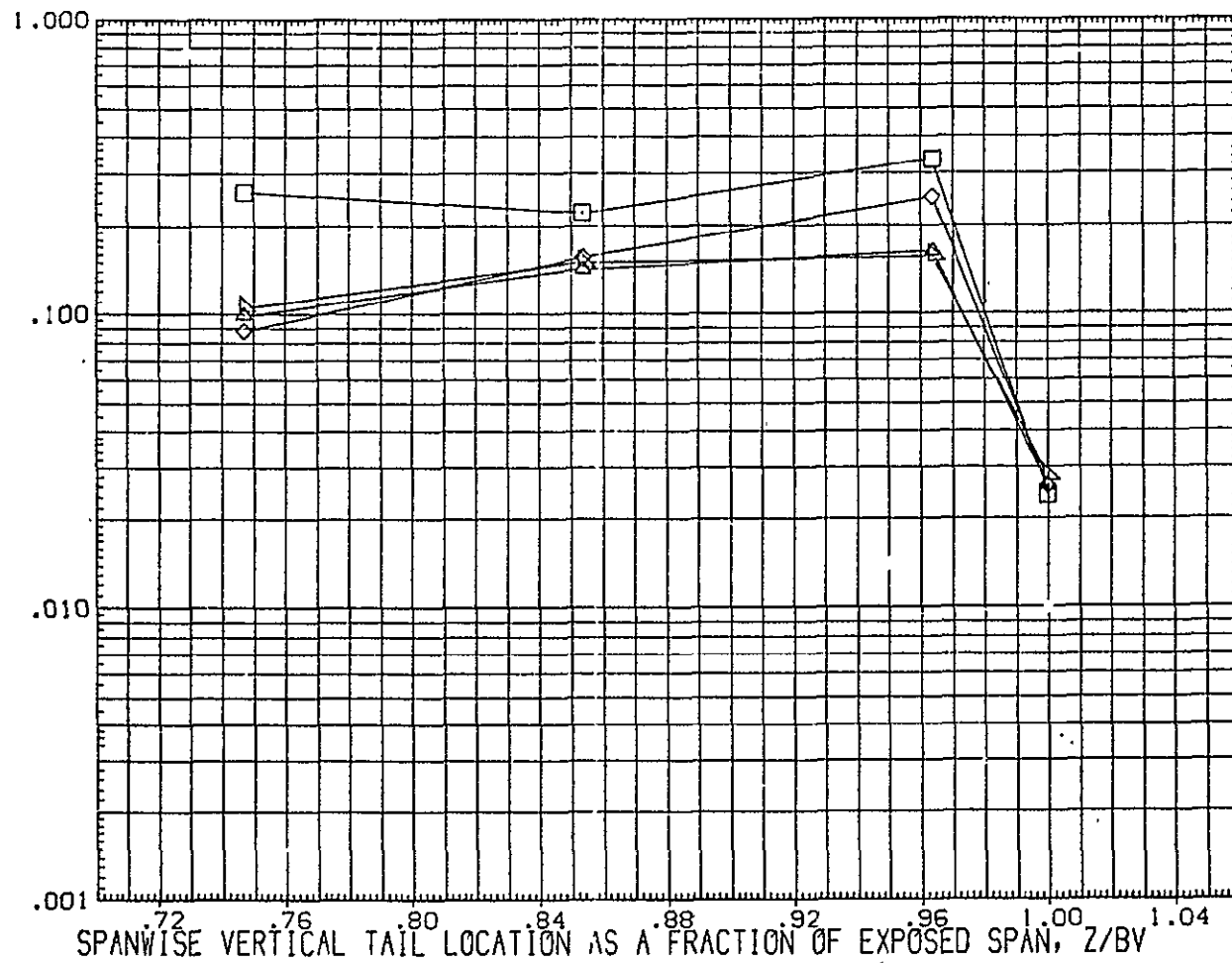


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT= .850 GAGENO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV11)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	30.000	.000
(RUGV12)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	35.000	.000
(RUGV13)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

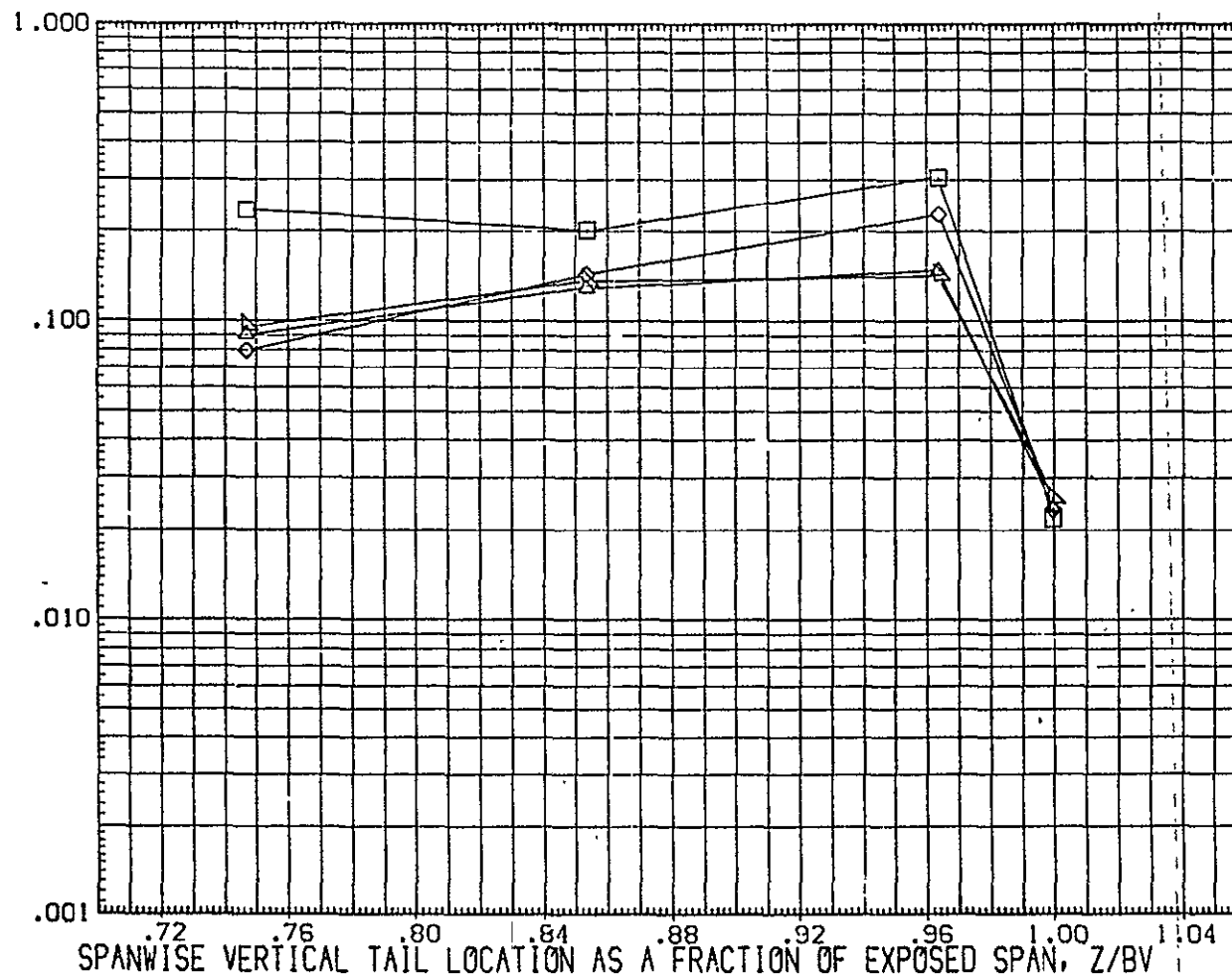


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 7.900 HAW/HT= .900 GAGENO= 40.000

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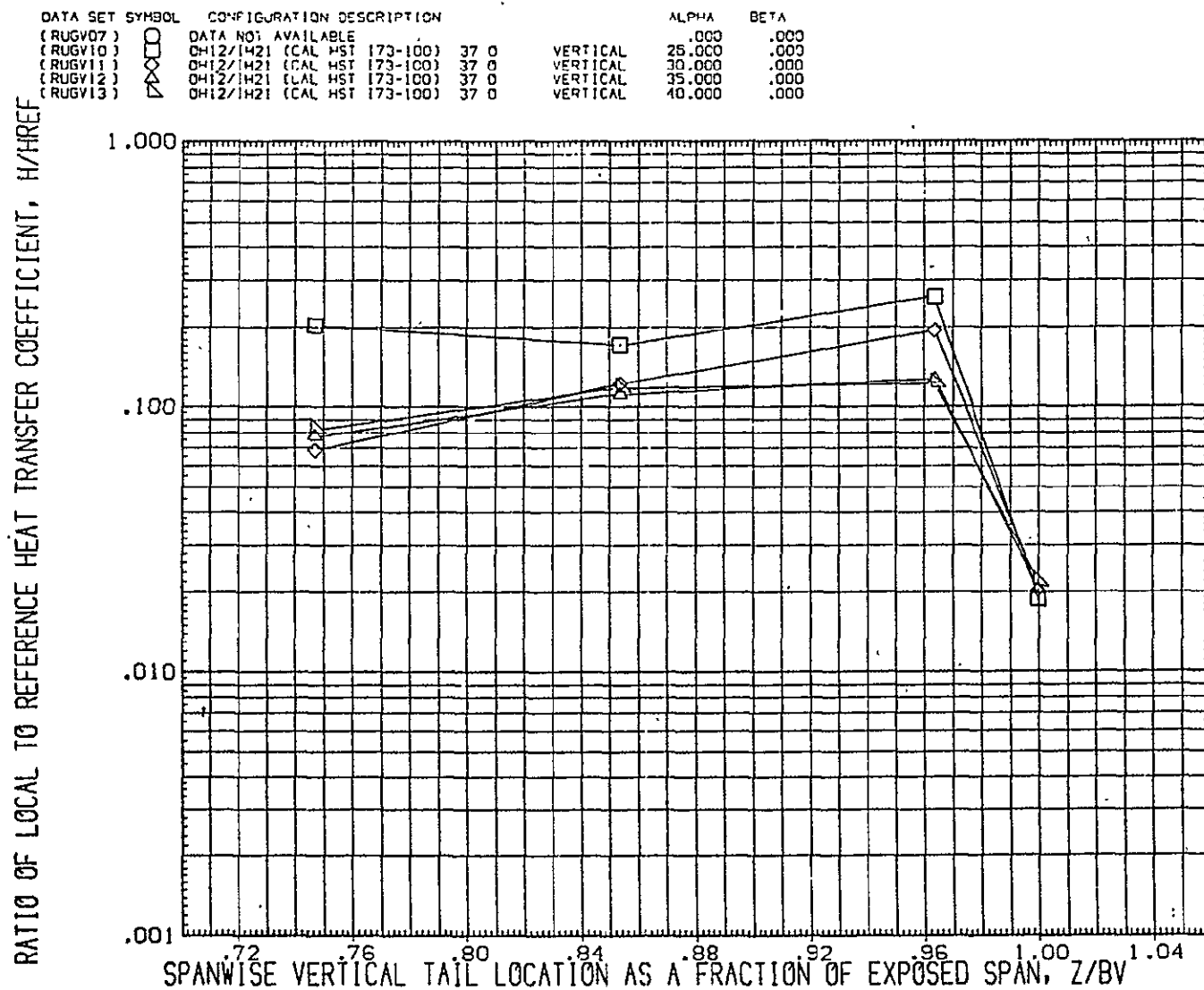


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$
 MACH = 7.900 HAW/HT= 1.000 GAGENO= 40.000 PAGE 735

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	CH12/H21 (CAL HST 173-100) 37 0	25.000	.000
(RUGV11)	DATA NOT AVAILABLE	30.000	.000
(RUGV12)	CH12/H21 (CAL HST 173-100) 37 0	35.000	.000
(RUGV13)	CH12/H21 (CAL HST 173-100) 37 0	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

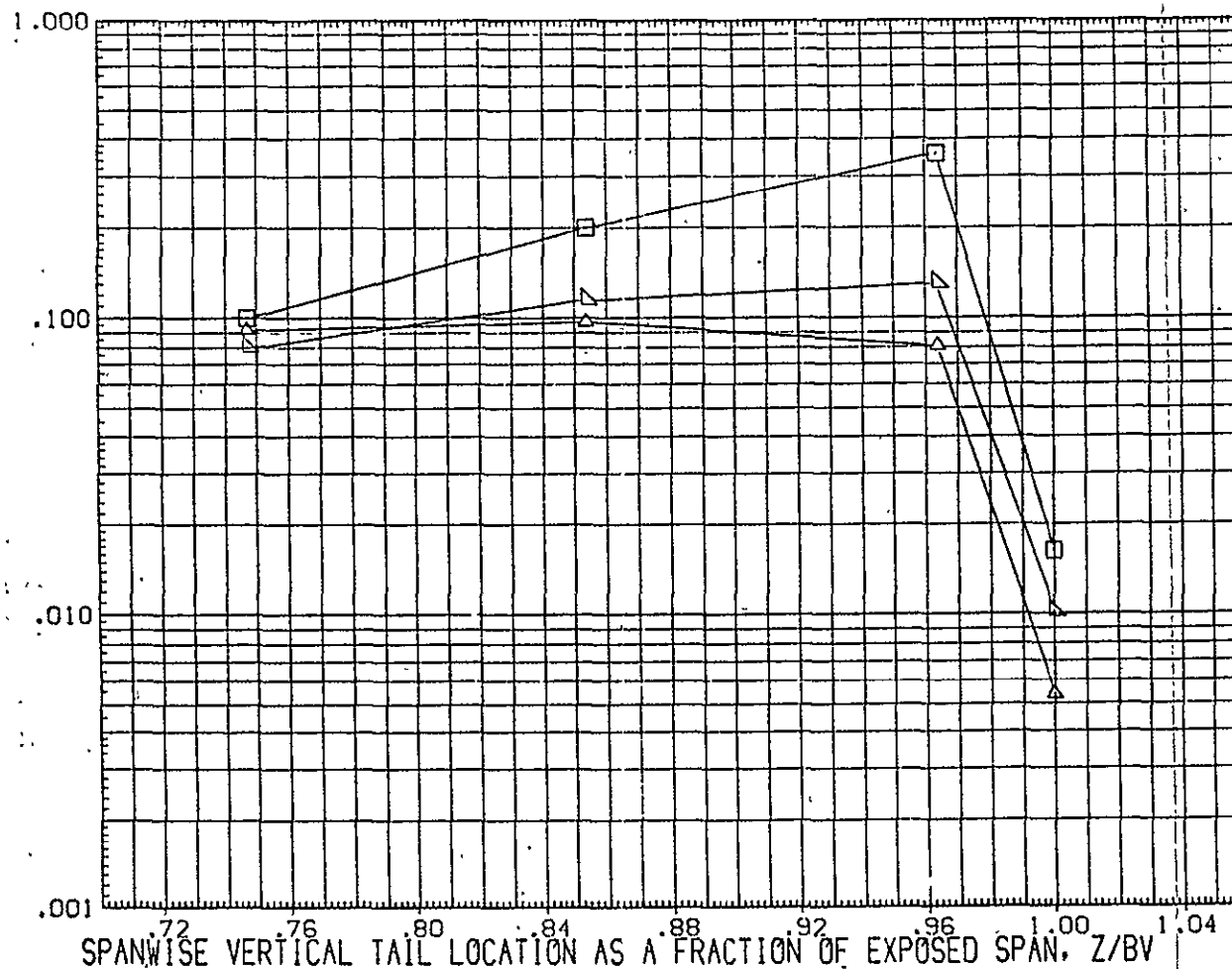


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = .850 GAGENO = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV11)	DATA NOT AVAILABLE	37.000	.000
(RUGV12)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	33.000	.000
(RUGV13)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	43.000	.000

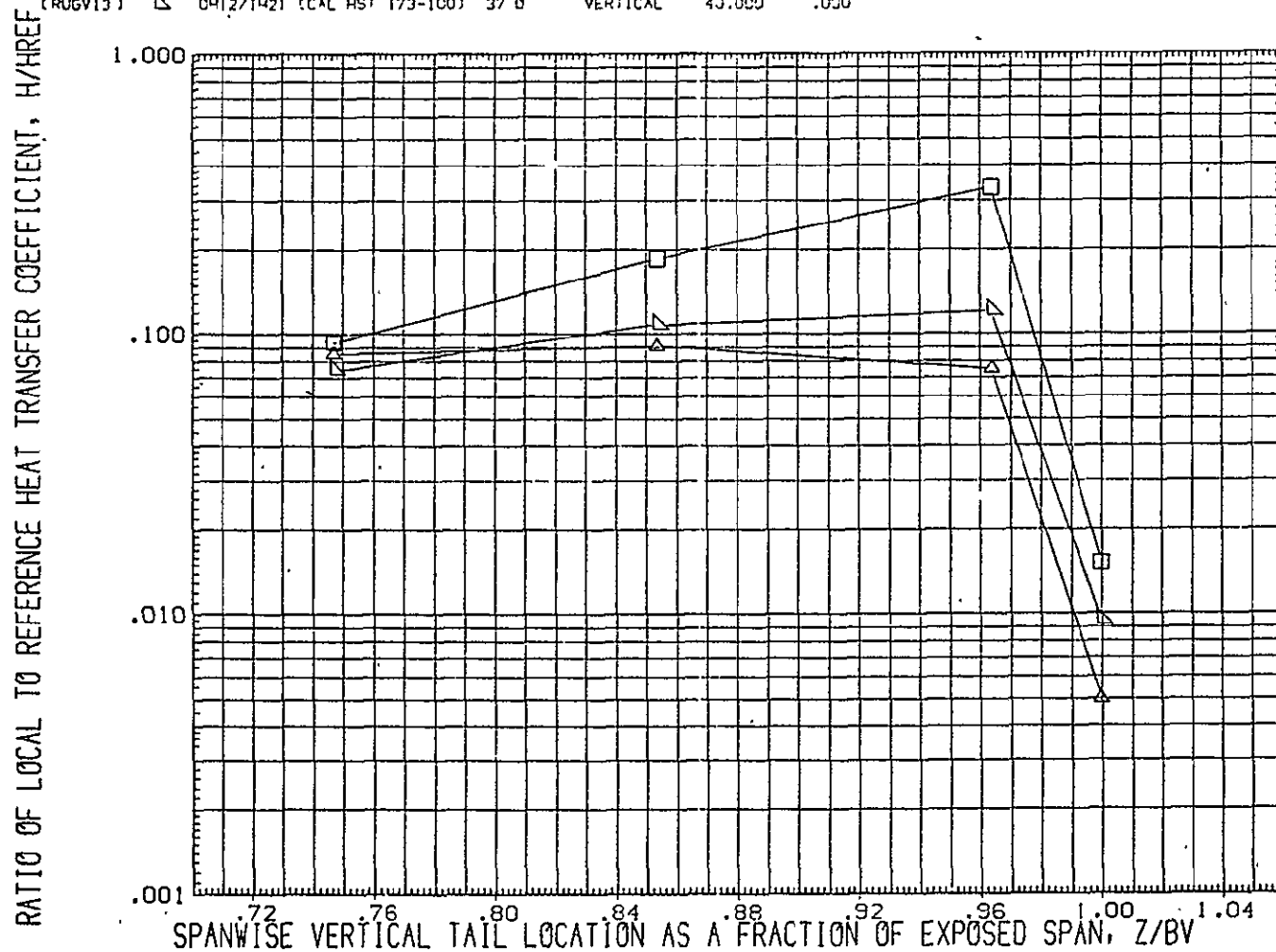


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT = .900 GAGENO = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
[RUGV07]	DATA NOT AVAILABLE	.000	.000
[RUGV10]	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
[RUGV11]	DATA NOT AVAILABLE	30.000	.000
[RUGV12]	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	35.000	.000
[RUGV13]	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	40.000	.000

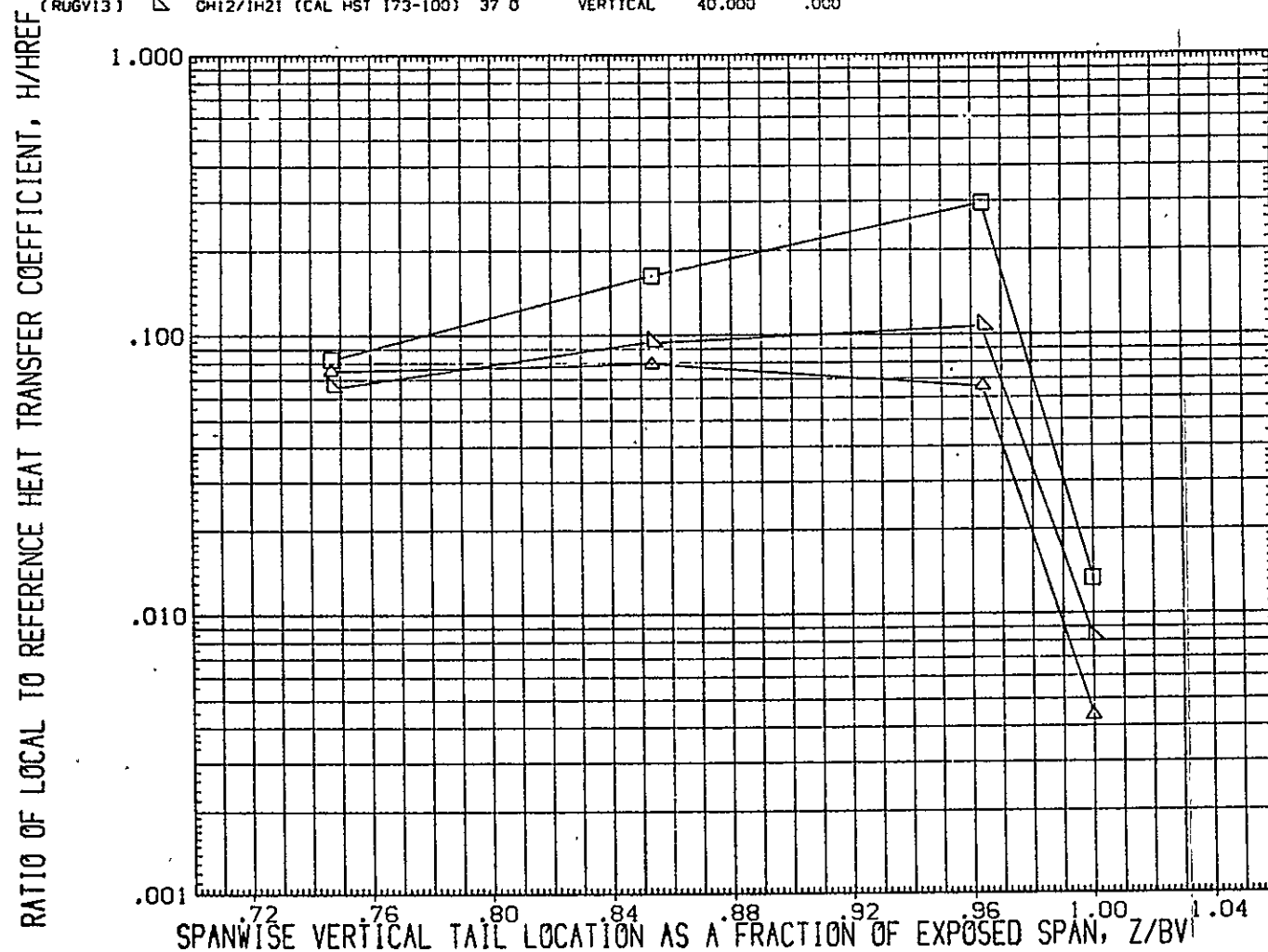


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 8.010 HAW/HT= 1.000 GAGENO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	CH12/1H21 (CAL HST 173-100) 37 0	25.000	.000
(RUGV11)	CH12/1H21 (CAL HST 173-100) 37 0	30.000	.000
(RUGV12)	CH12/1H21 (CAL HST 173-100) 37 0	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/HREF

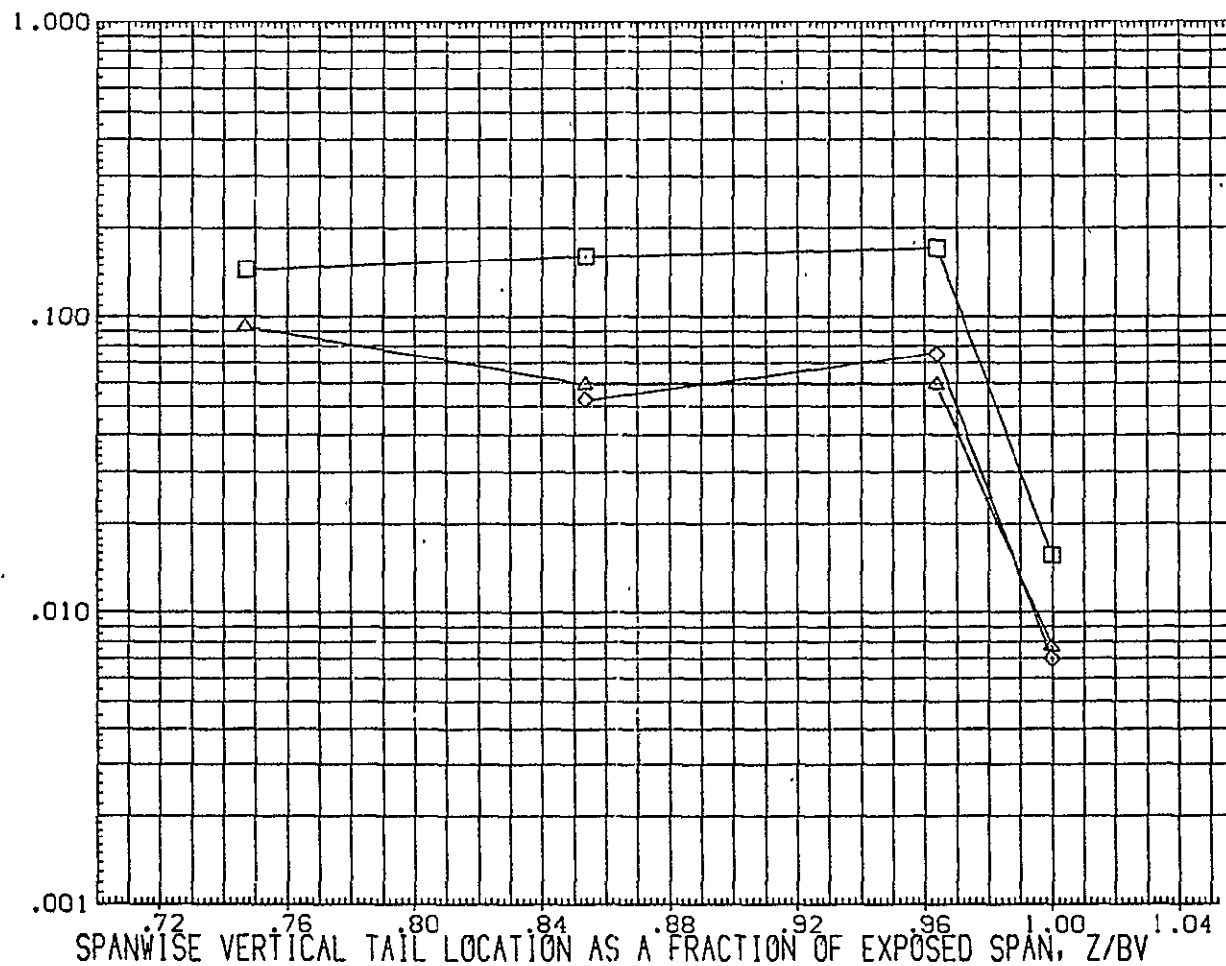


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER RN/L1

MACH = 10.500 HAW/HT= .850 GAGENO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV11)	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	30.000	.000
(RUGV12)	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

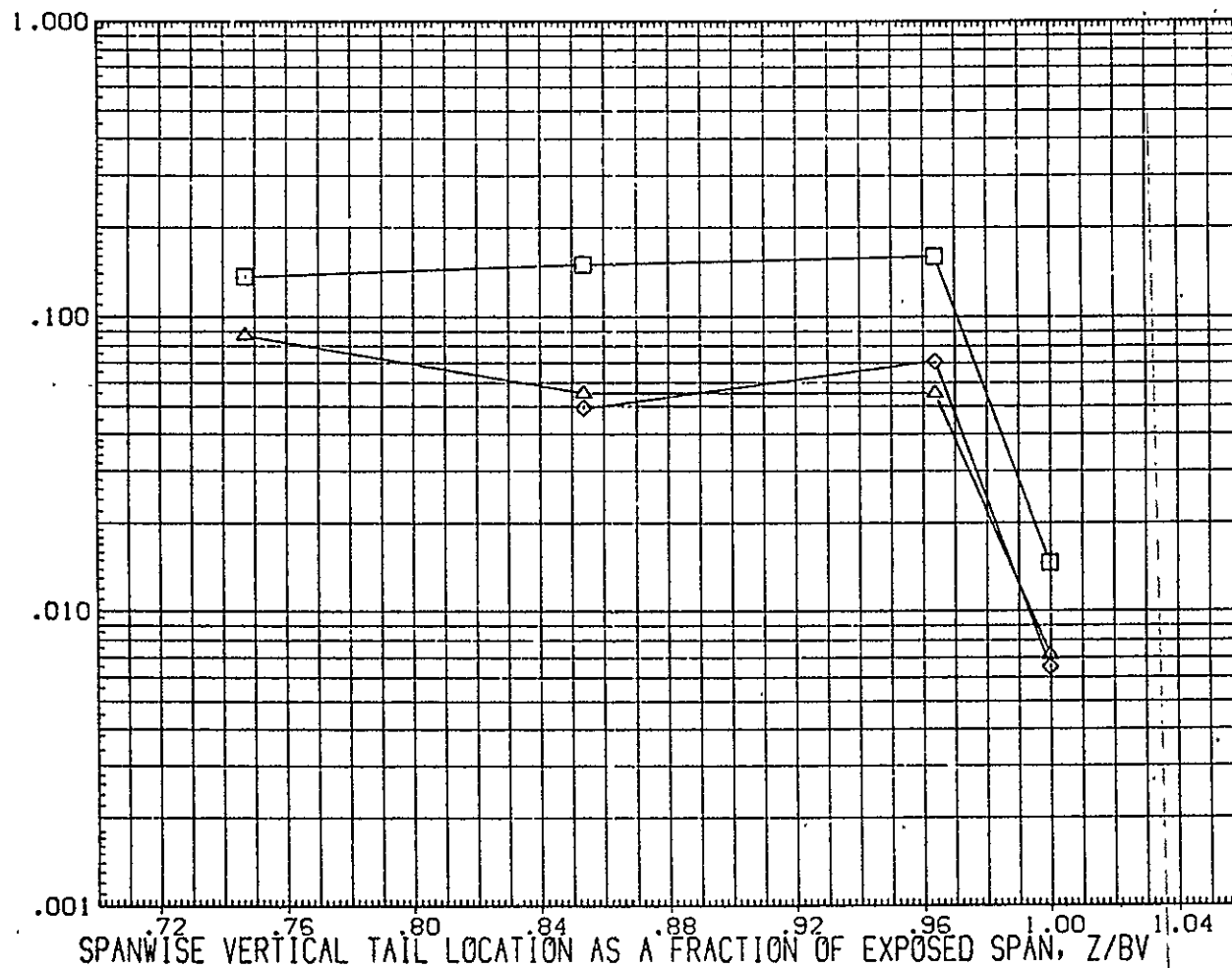


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/HT = .900 GAGENO = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV11)	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	30.000	.000
(RUGV12)	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

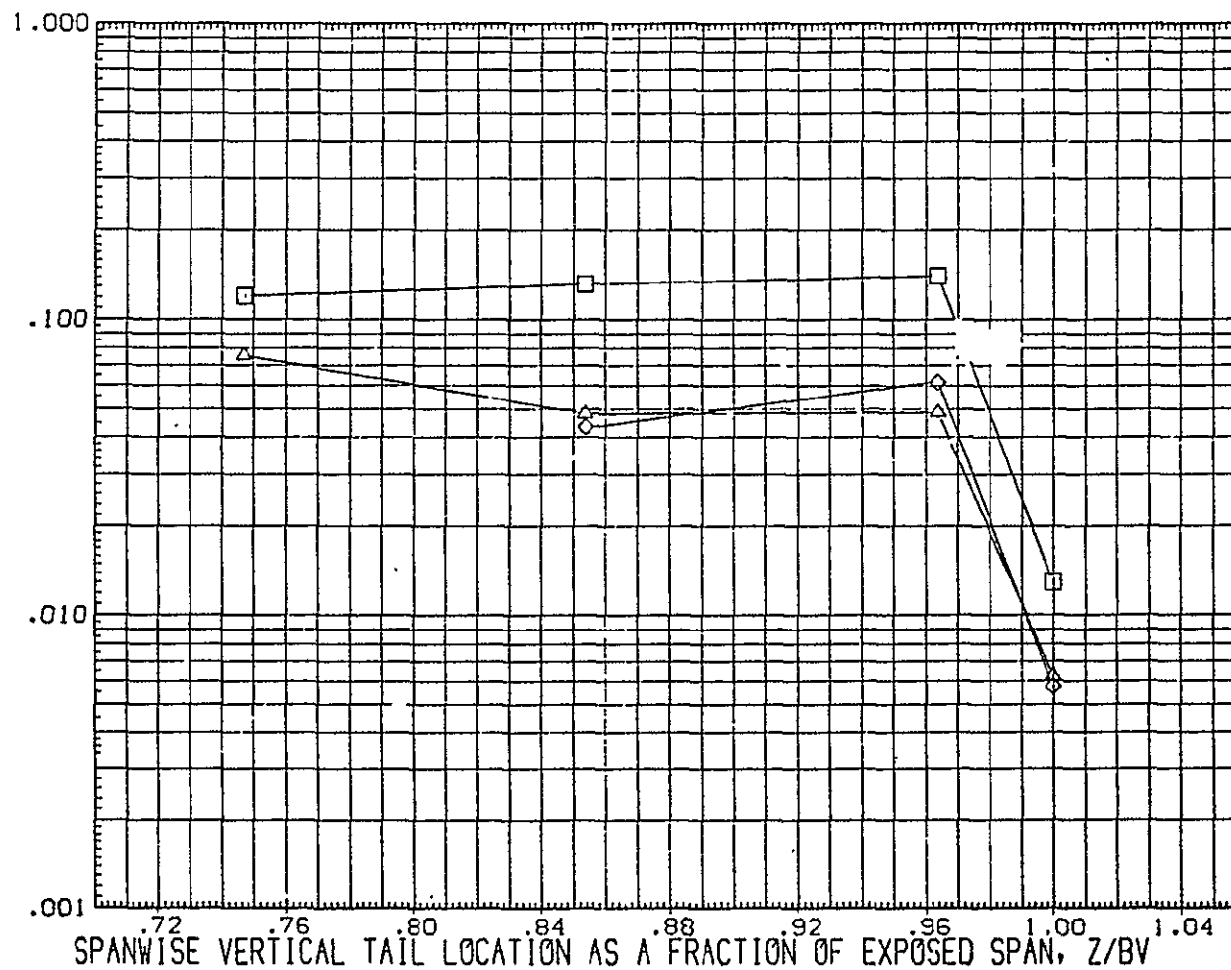


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 10.500 HAW/HT = 1.000 GAGENO = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV11)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	30.000	.000
(RUGV12)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

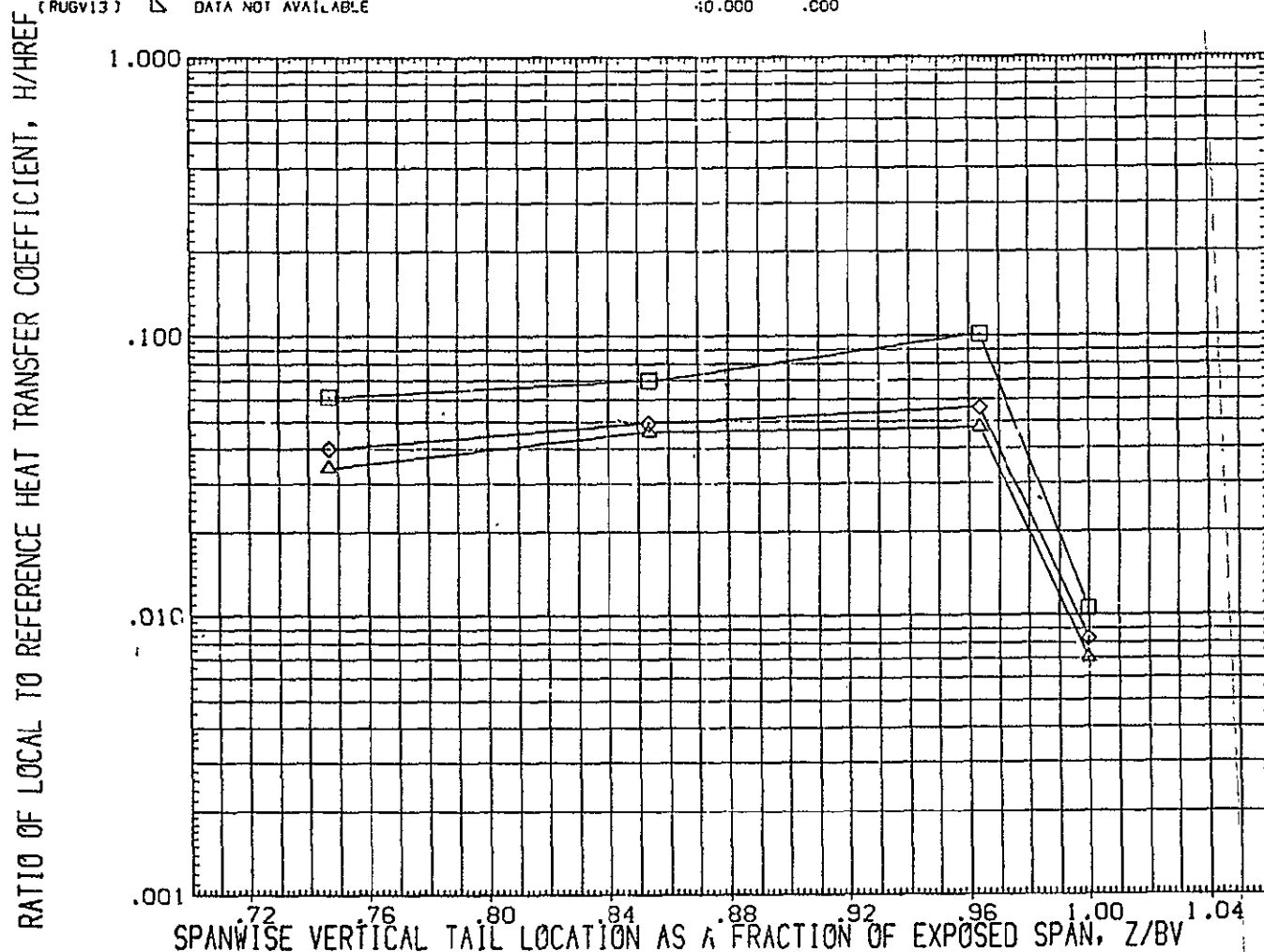


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER RN/L_1

MACH = 12.200 HAW/HT = .850 GAGENO = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	DATA NOT AVAILABLE	.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV11)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	30.000	.000
(RUGV12)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

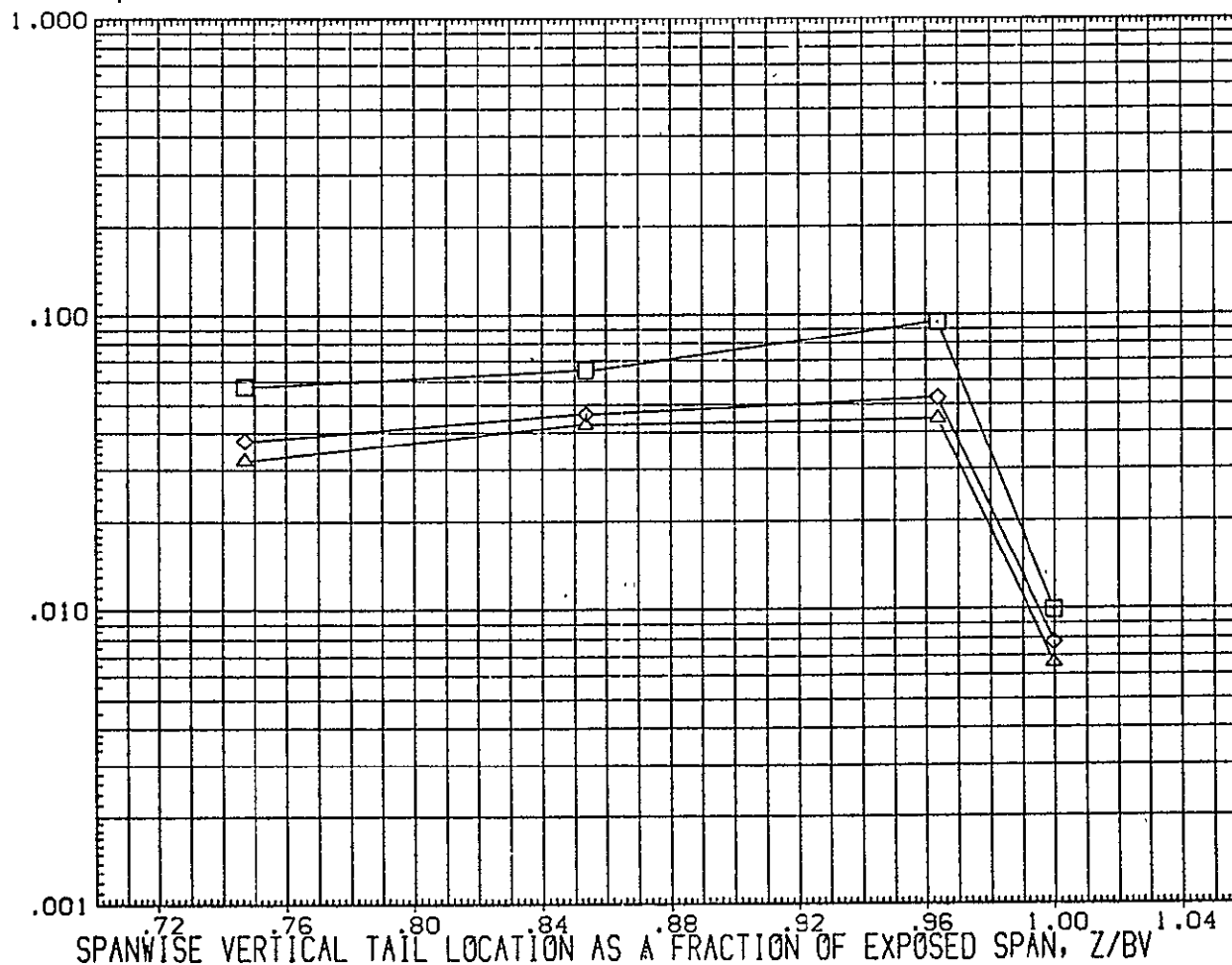


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 12.200 HAW/HT = .900 GAGENO = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUSV07)	DATA NOT AVAILABLE	.000	.000
(RUSV10)	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000
(RUSV11)	OH12/1H21 (CAL HST 173-100) 37 0	30.000	.000
(RUSV12)	OH12/1H21 (CAL HST 173-100) 37 0	35.000	.000
(RUSV13)	DATA NOT AVAILABLE	40.000	.000

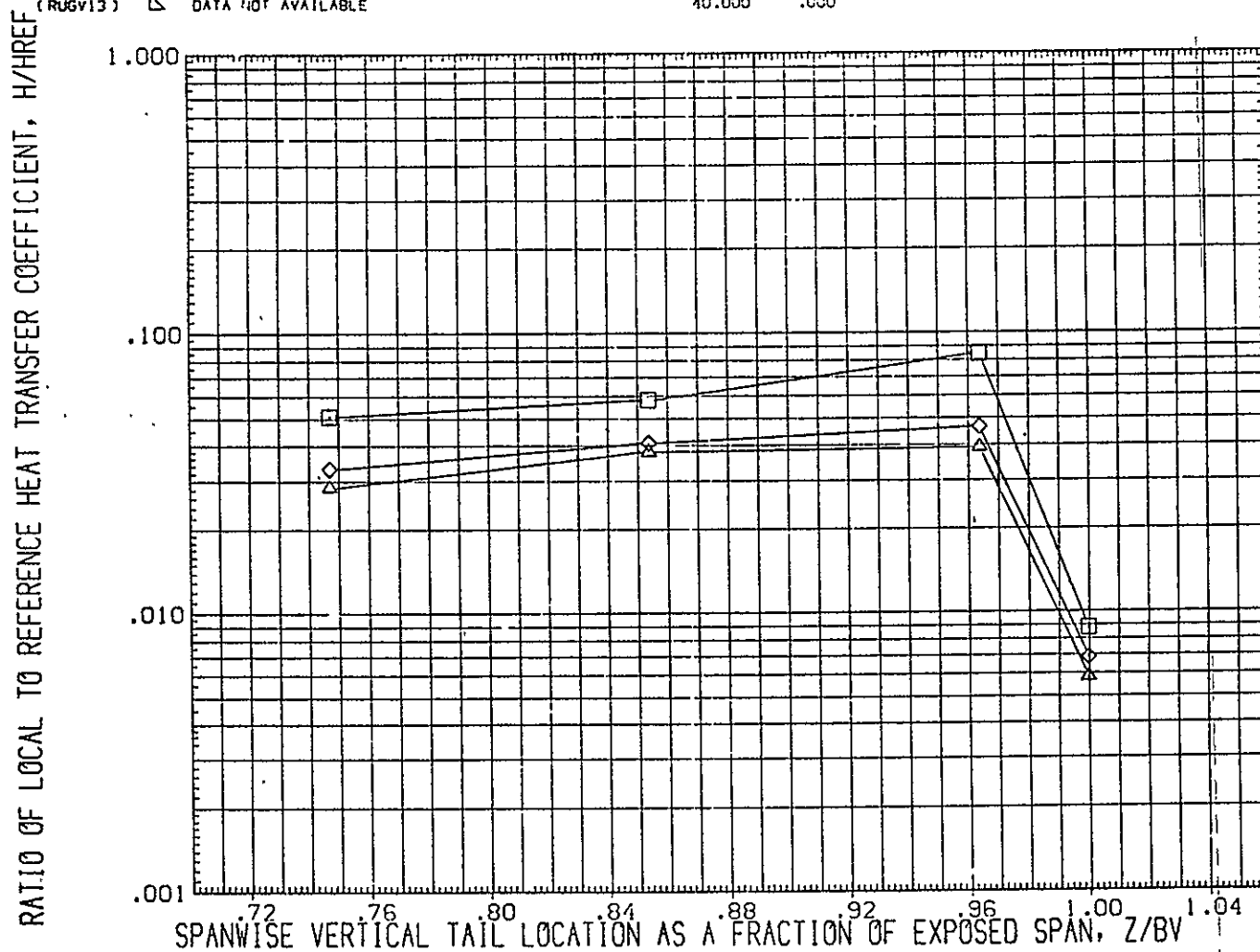


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 12.200 HAW/HT= 1.000 GAGENO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	GH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	.000	.000
(RUGV10)	GH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV11)	GH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	30.000	.000
(RUGV12)	GH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

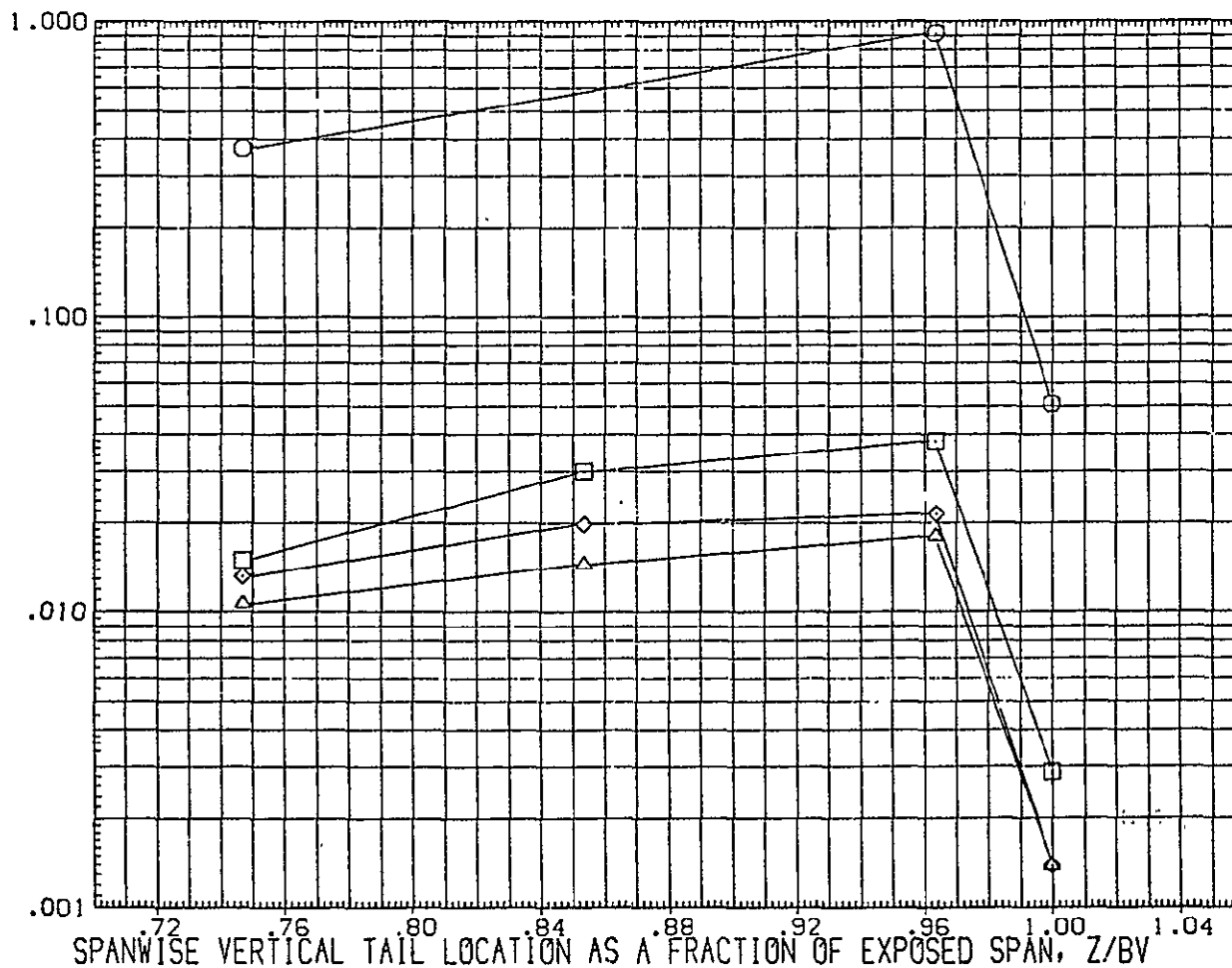


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = .850 GAGENO = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	CH12/1421 (CAL HST 173-100) 37 0 VERTICAL	.000	.000
(RUGV10)	CH12/1421 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV11)	CH12/1421 (CAL HST 173-100) 37 0 VERTICAL	30.000	.000
(RUGV12)	CH12/1421 (CAL HST 173-100) 37 0 VERTICAL	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

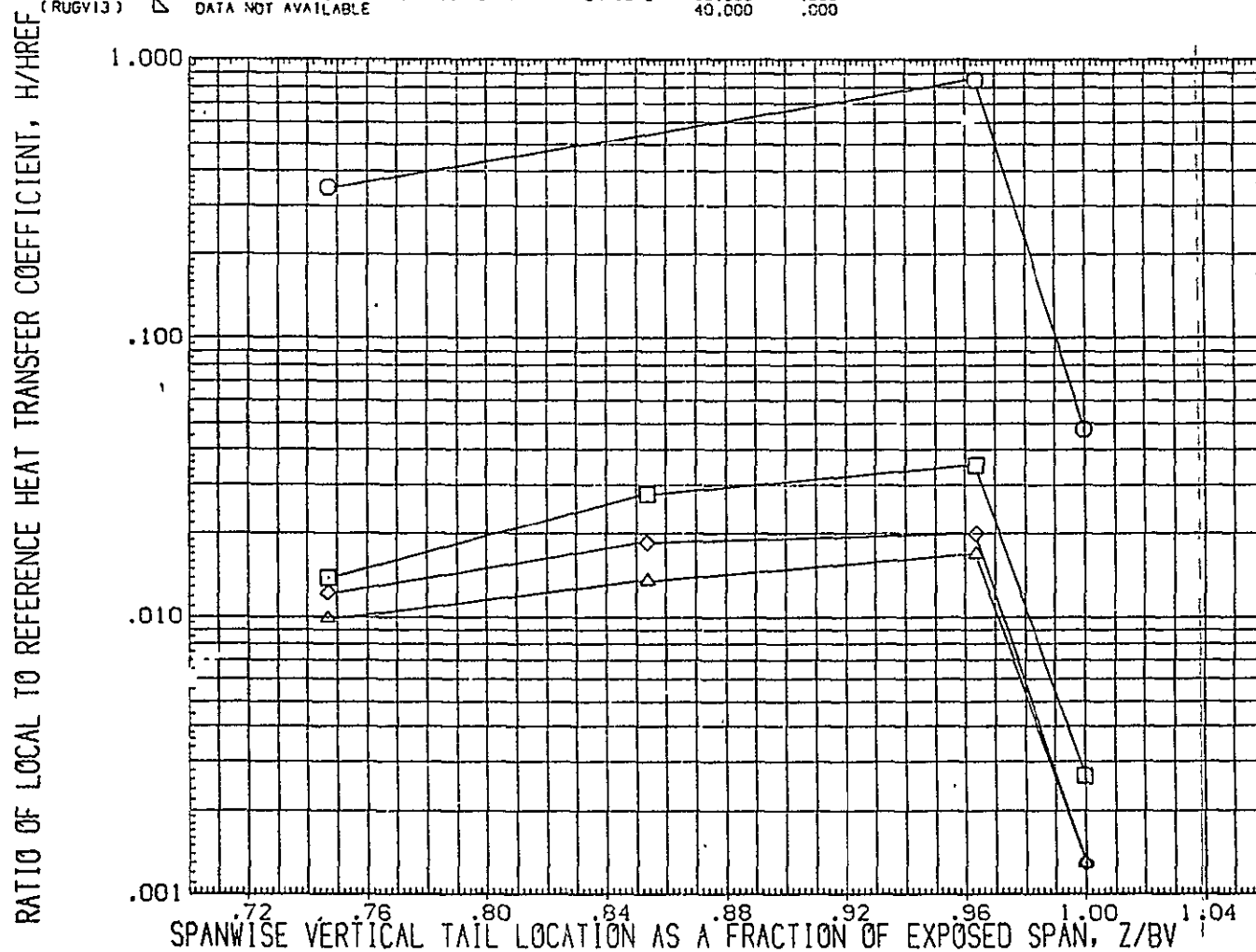


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$
MACH = 16.000 HAW/HT = .900 GAGENO = 40.000 PAGE 746

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	CH12/1421 (CAL HST 173-100) 37 0 VERTICAL	.000	.000
(RUGV10)	CH12/1421 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV11)	CH12/1421 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV12)	CH12/1421 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

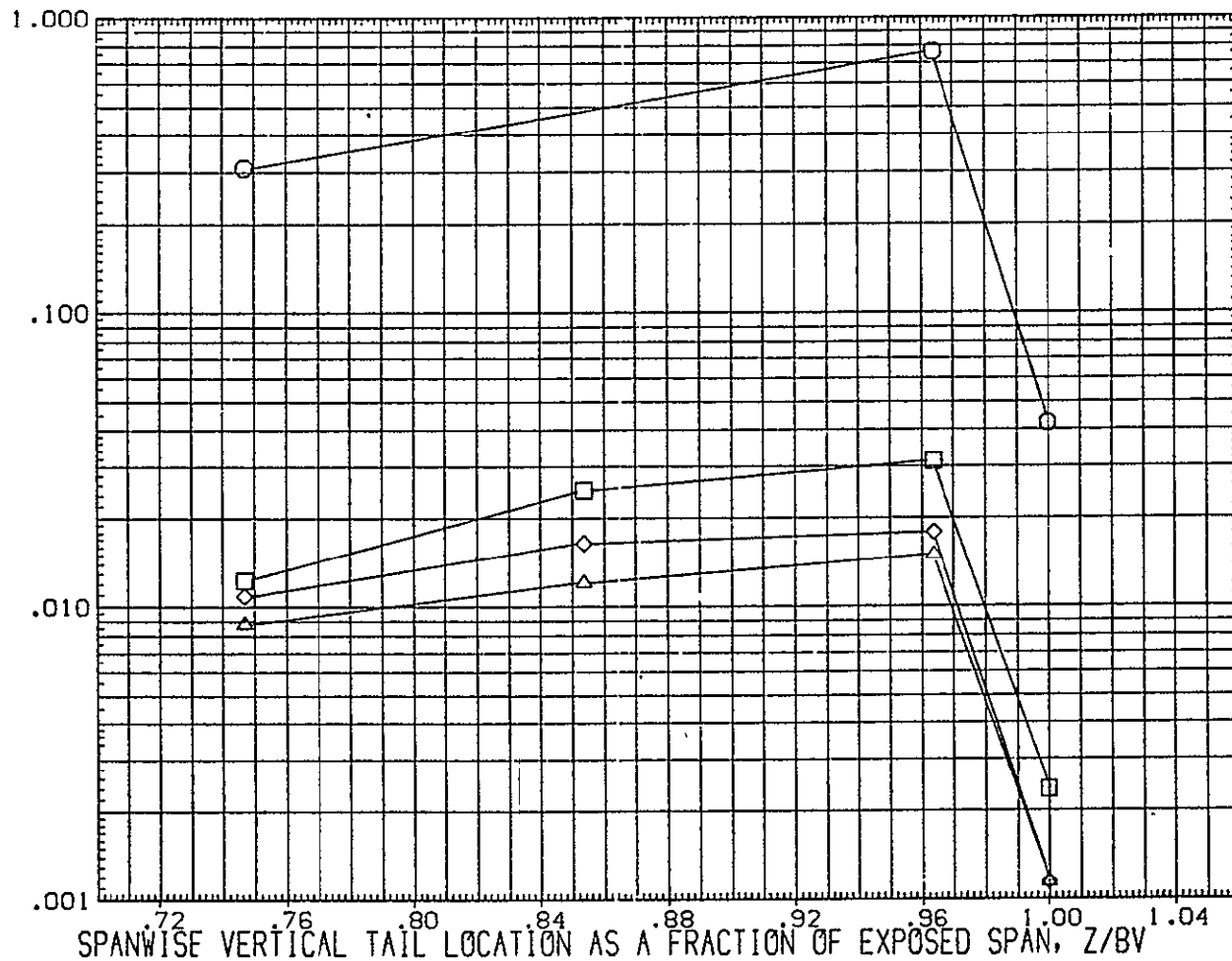


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 16.000 HAW/HT = 1.000 GAGENO = 40.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	.000	.000
(RUGV10)	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV11)	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	30.000	.000
(RUGV12)	CH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

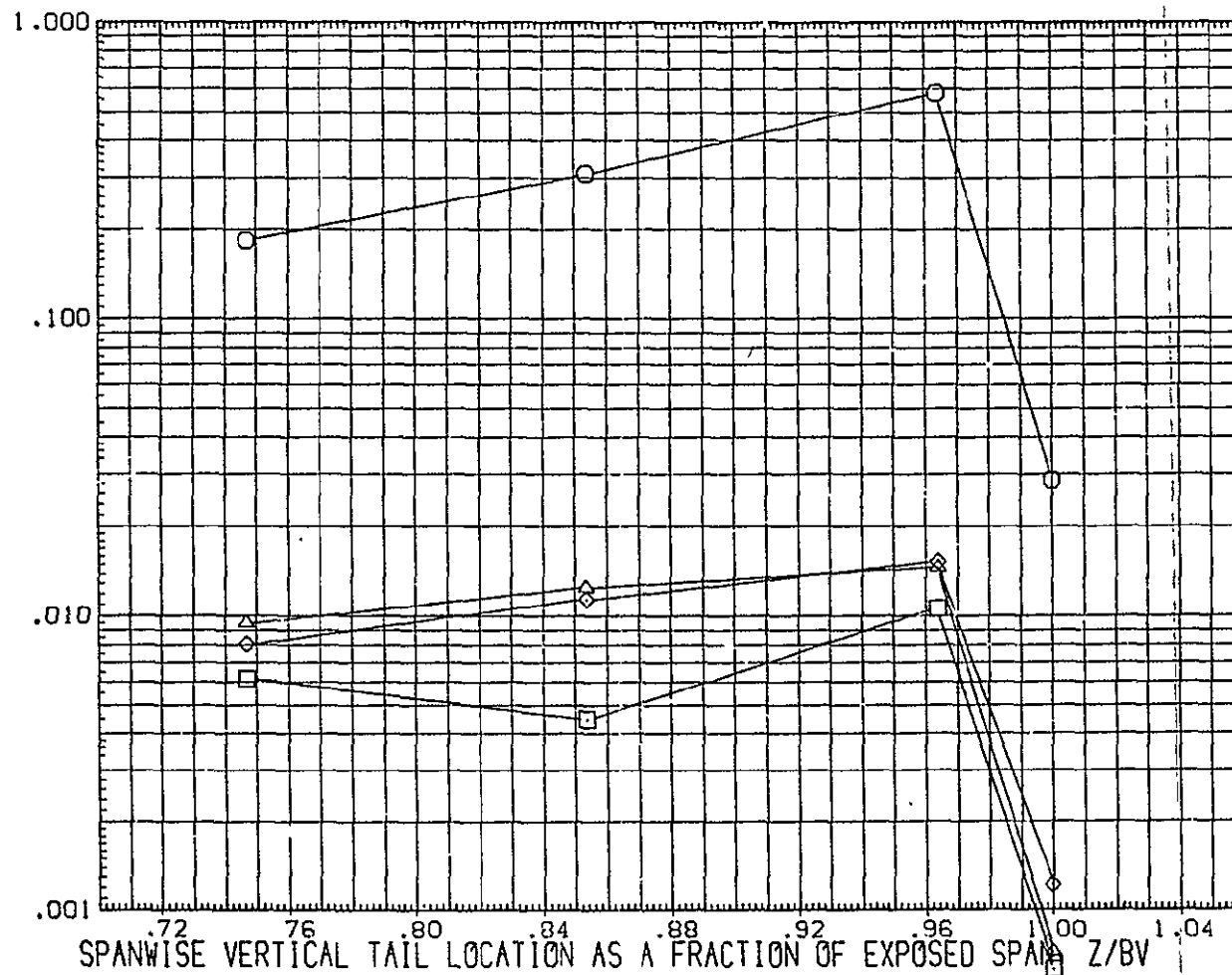


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT = .850 GAGENO = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	.000	.000
(RUGV10)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV11)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	30.000	.000
(RUGV12)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	35.000	.000
(RUGV13)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	40.000	.000
	DATA NOT AVAILABLE		

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

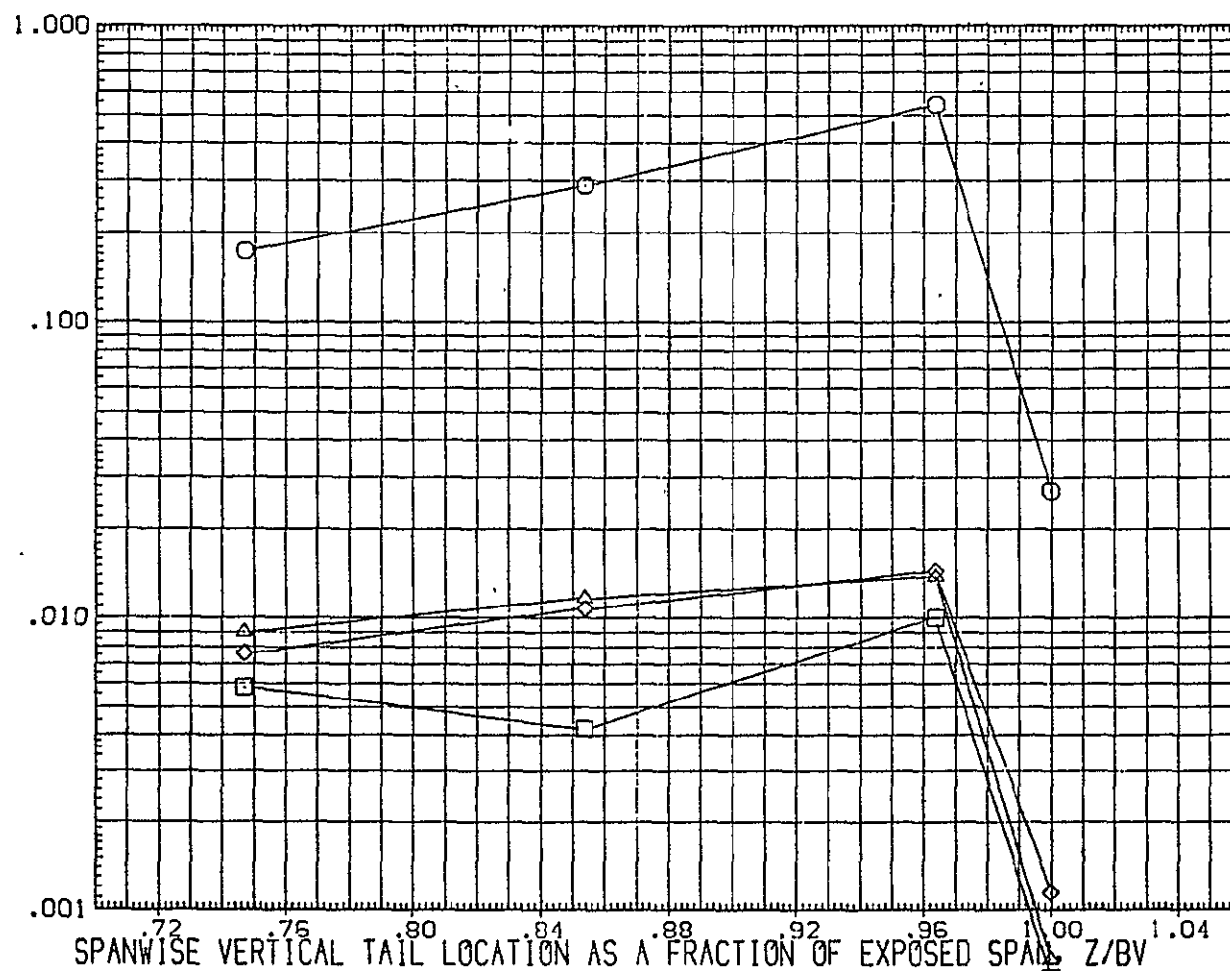


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$

MACH = 19.170 HAW/HT= .900 GAGENO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV07)	CH12/H21 (CAL HST 173-100) 37 0 / VERTICAL	.000	.000
(RUGV10)	CH12/H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV11)	CH12/H21 (CAL HST 173-100) 37 0 VERTICAL	30.000	.000
(RUGV12)	CH12/H21 (CAL HST 173-100) 37 0 VERTICAL	35.000	.000
(RUGV13)	DATA NOT AVAILABLE	40.000	.000

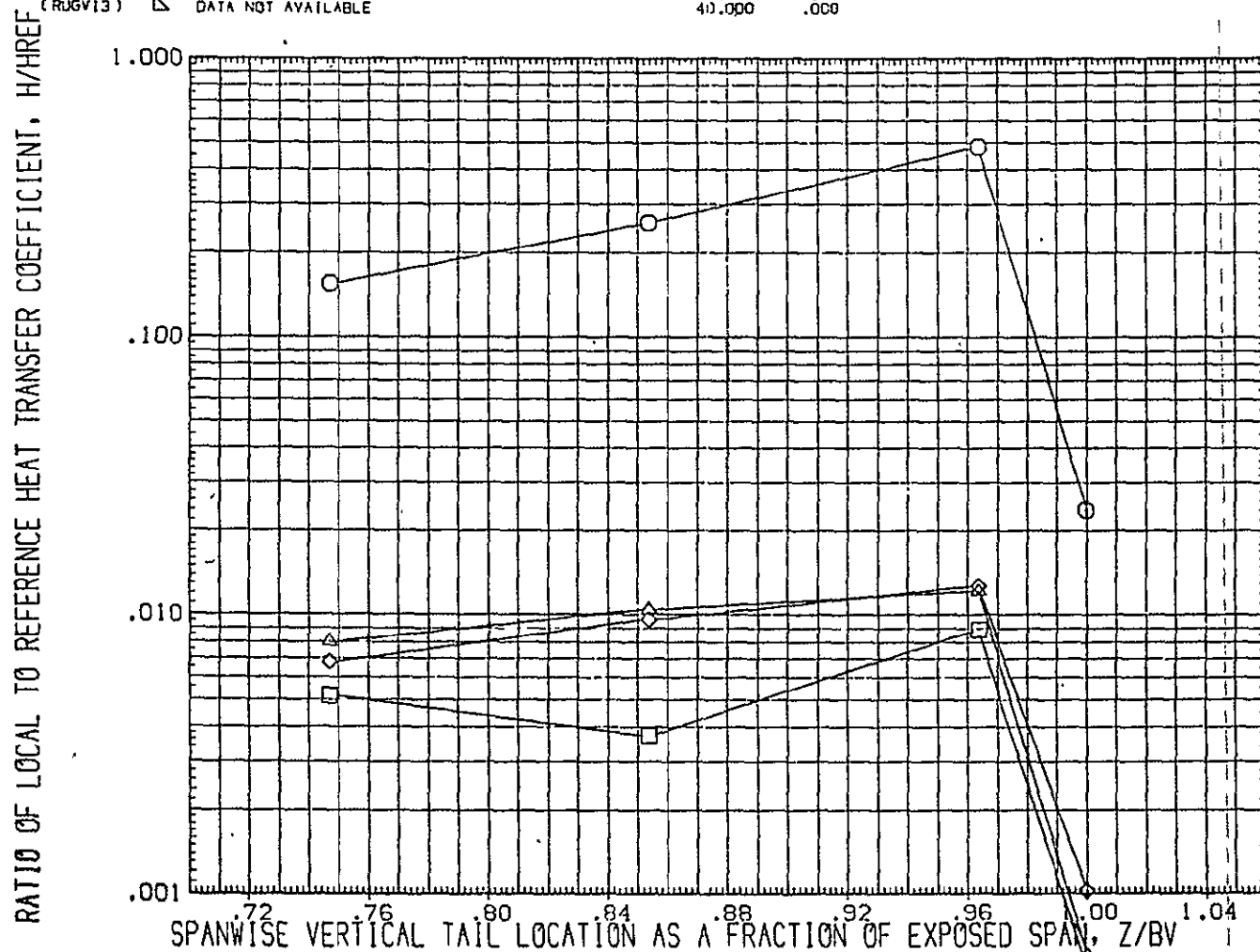


FIG. 23 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L1$
MACH = 19.170 HAW/HT= 1.000 GAGENO= 40.000 PAGE 750

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	CH12/H21 (CAL HST 173-100) 37 0	25.000	.000
(RUGB16)	CH12/H21 (CAL HST 173-100) 37 0	30.000	.000
(RUGB17)	CH12/H21 (CAL HST 173-100) 37 0	35.000	.000

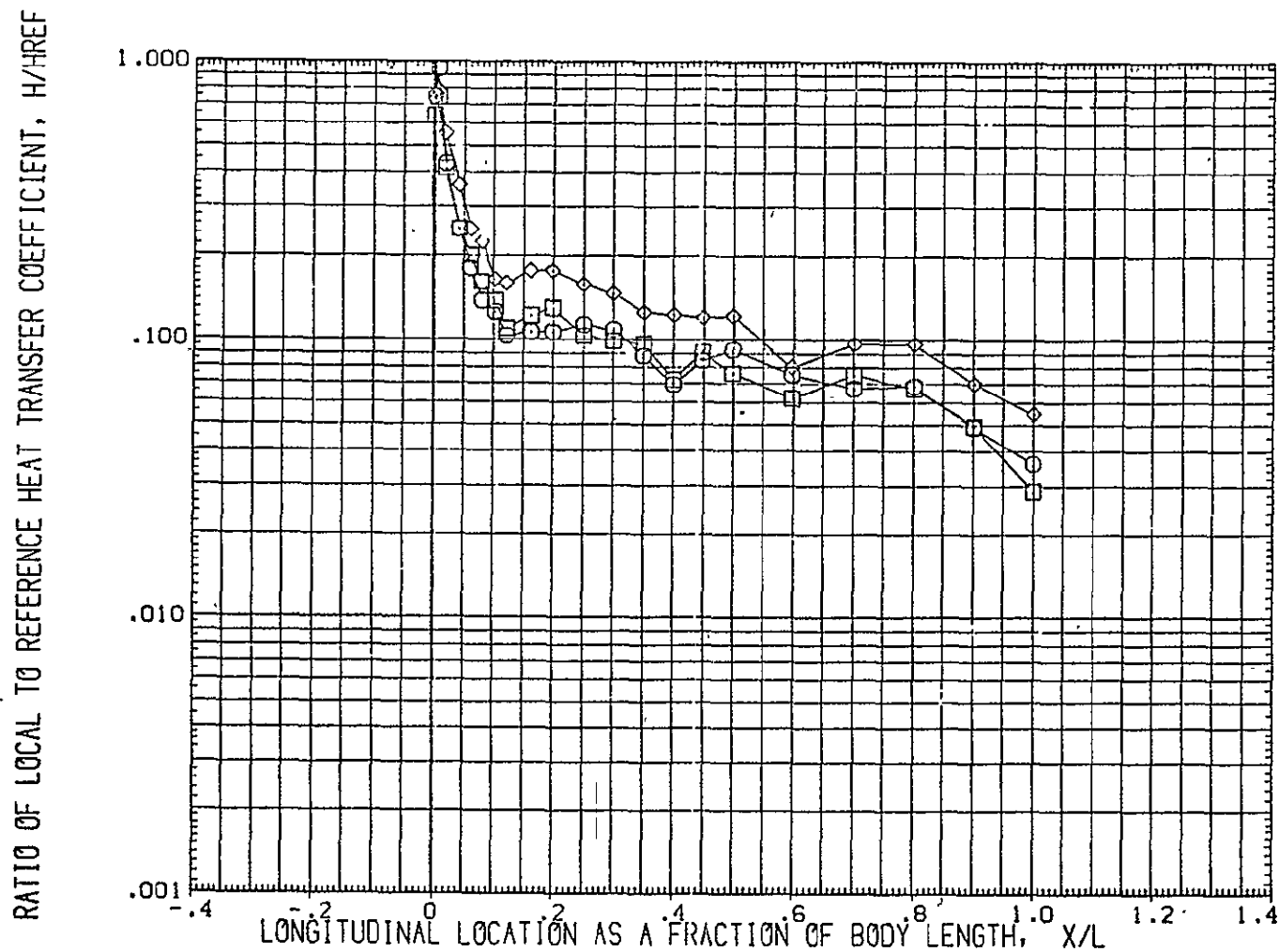


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L3
MACH = 12.030 HAW/HT = .850 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 30.000	.000
(RUGB17)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000

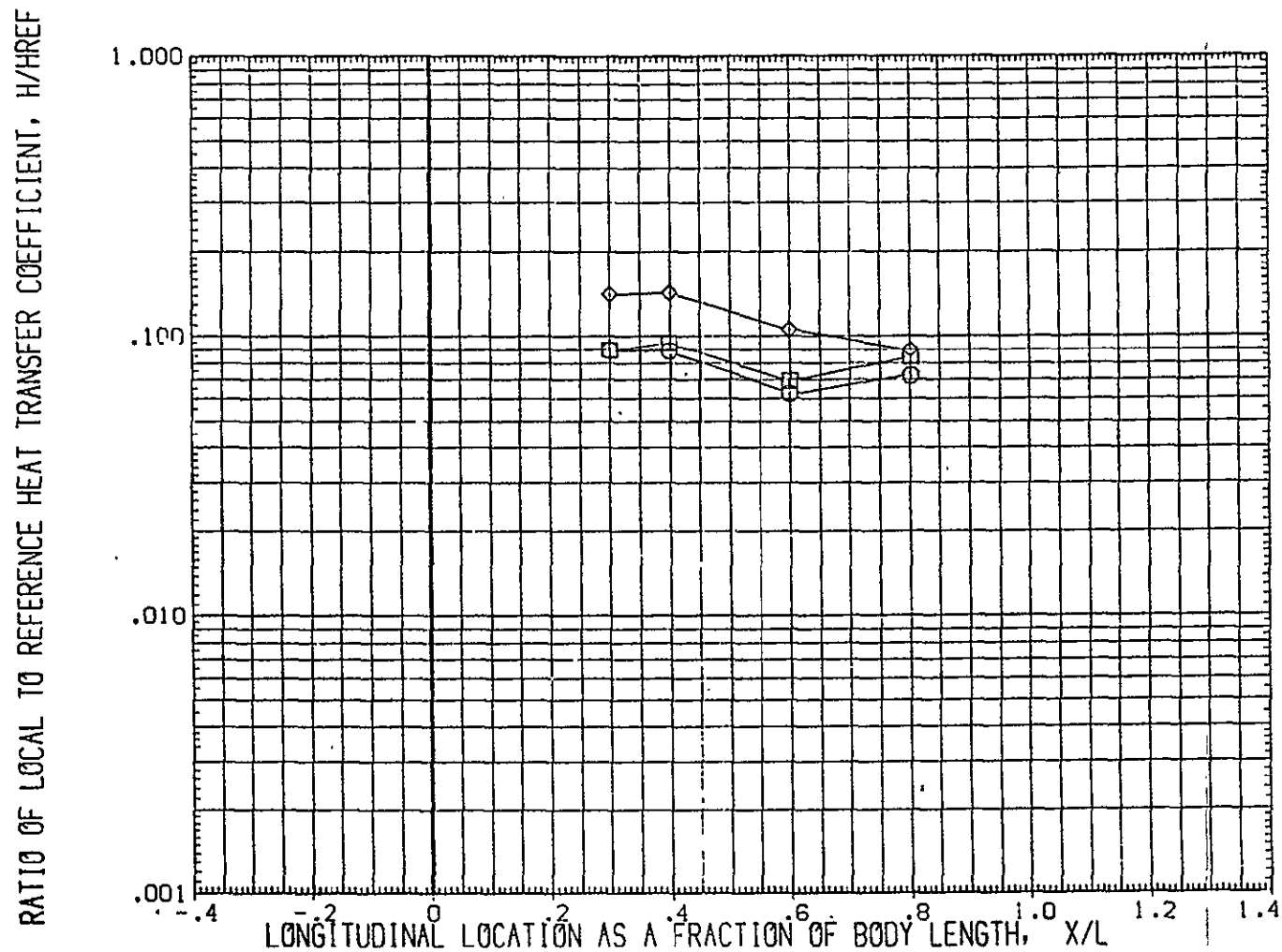


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L3$

MACH = 12.030 HAW/HT = .850 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUGB16)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE 30.000	.000
(RUGB17)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000

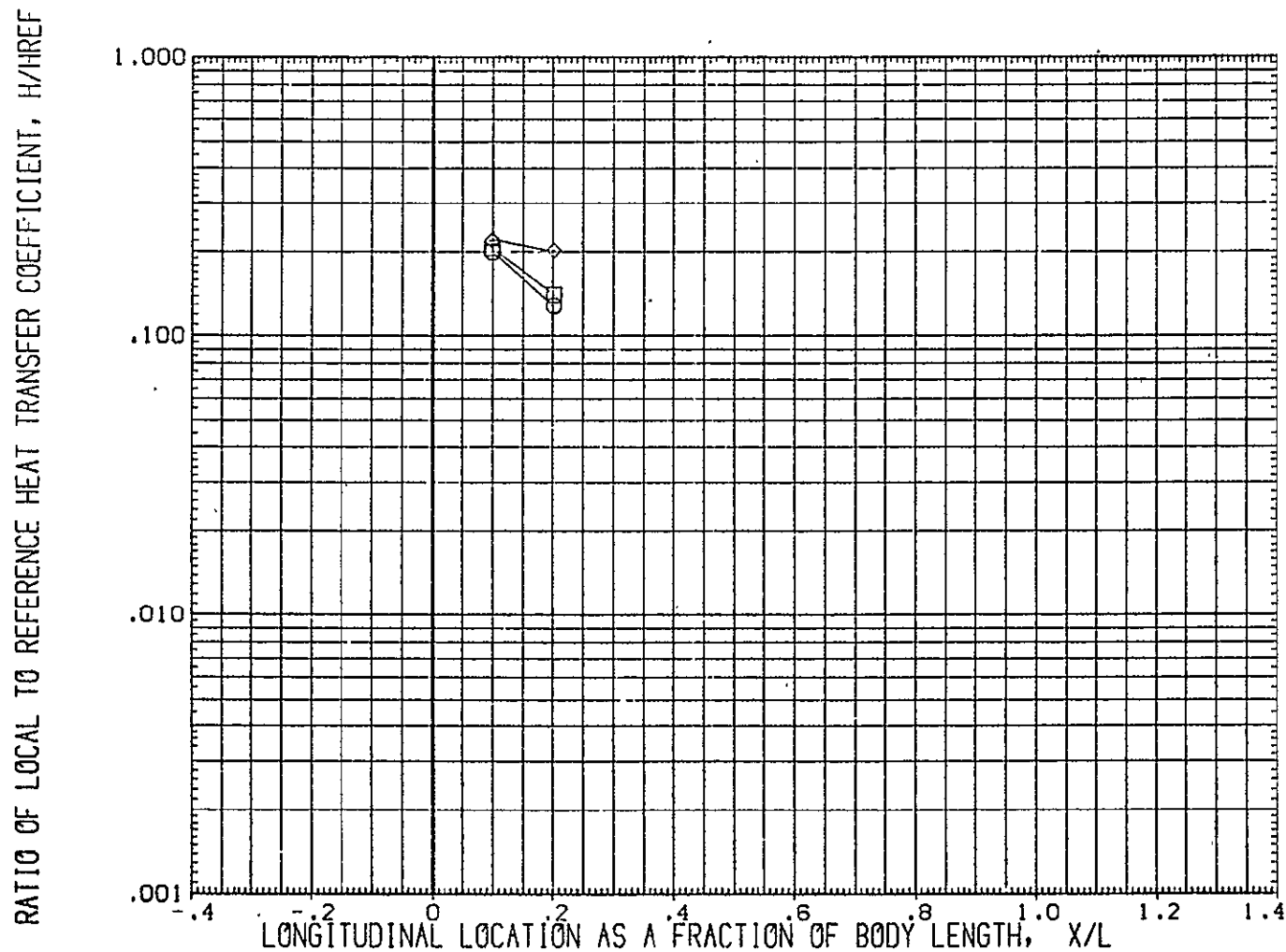


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L3

MACH = 12.030 HAW/HT = .850 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 30.000	.000
(RUGB17)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000

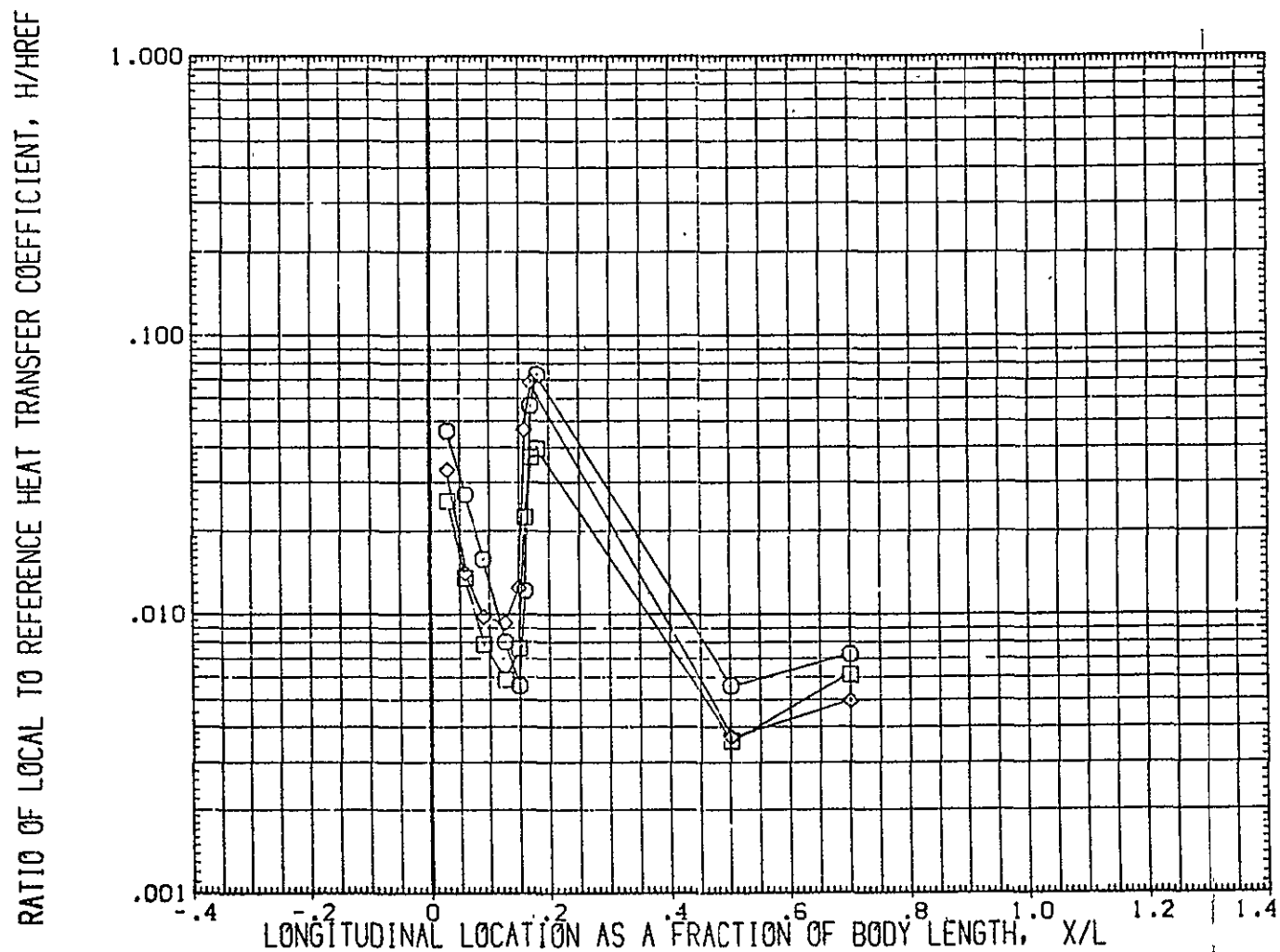


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L^3

MACH = 12.030 HAW/HT = .850 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	CH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUGB16)	CH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE 10.000	.000
(RUGB17)	CH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000

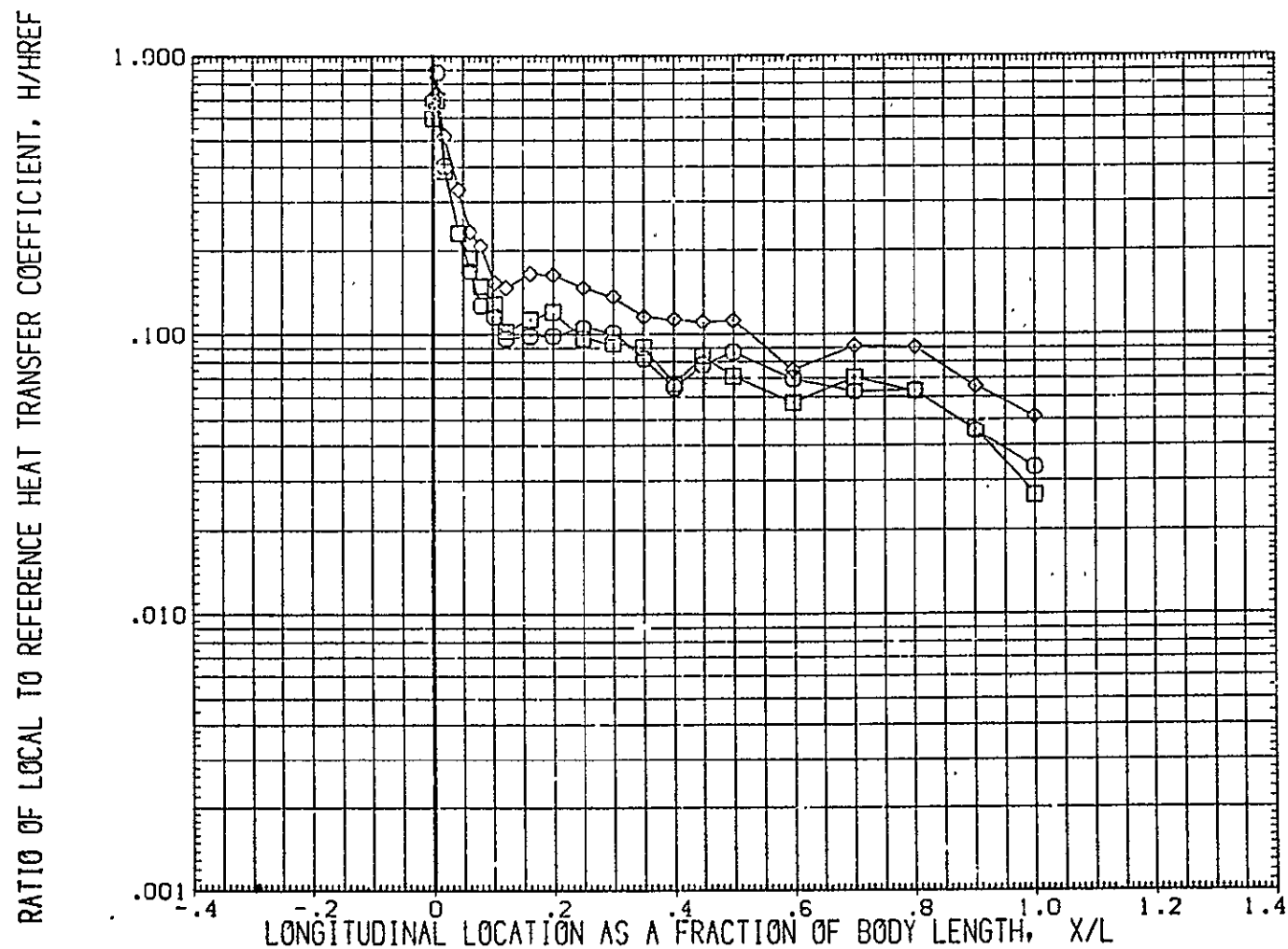


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L3

MACH = 12.030 HAW/HT = .900 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 30.000	.000
(RUGB17)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000

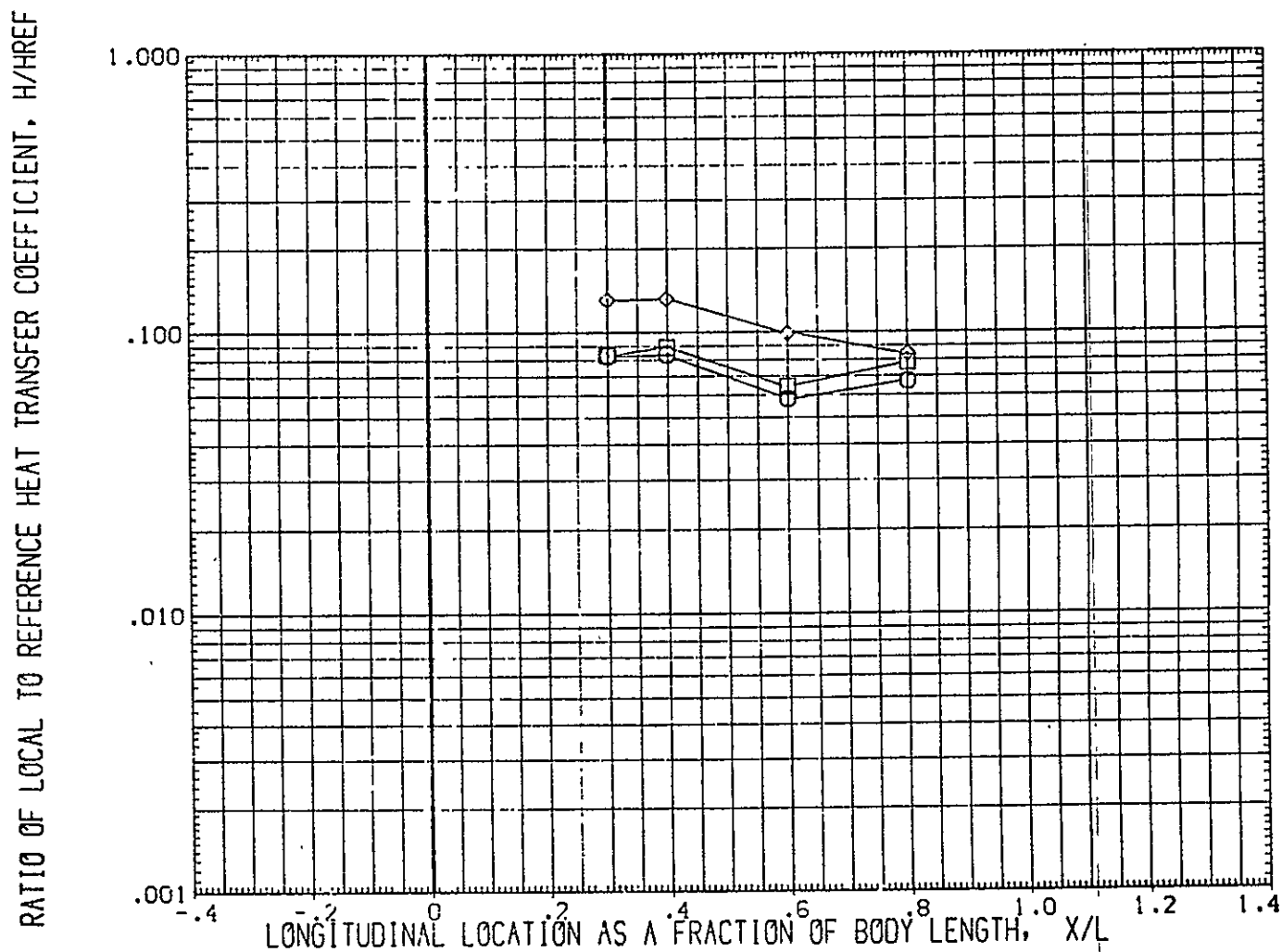


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L3

MACH = 12.030 HAW/HT = .900 PHI = 25.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUGB16)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE 30.000	.000
(PUGB17)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000

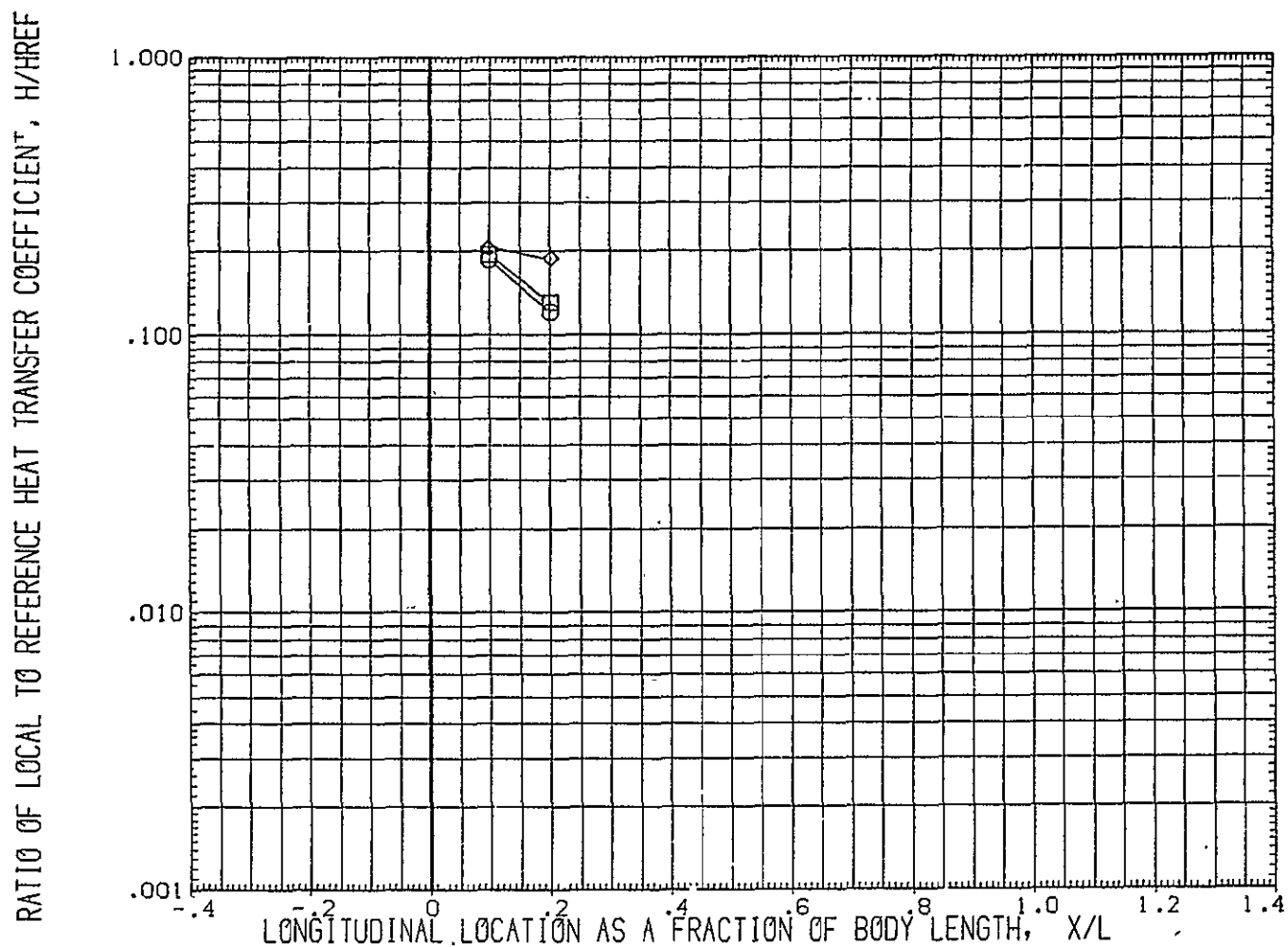


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L3$

MACH = 12.030 HAW/HT= .900 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGB15)	0412/1421 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(PUGB16)	0412/1421 (CAL HST 173-100) 37 0	FUSELAGE 30.000	.000
(PUGB17)	0412/1421 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000

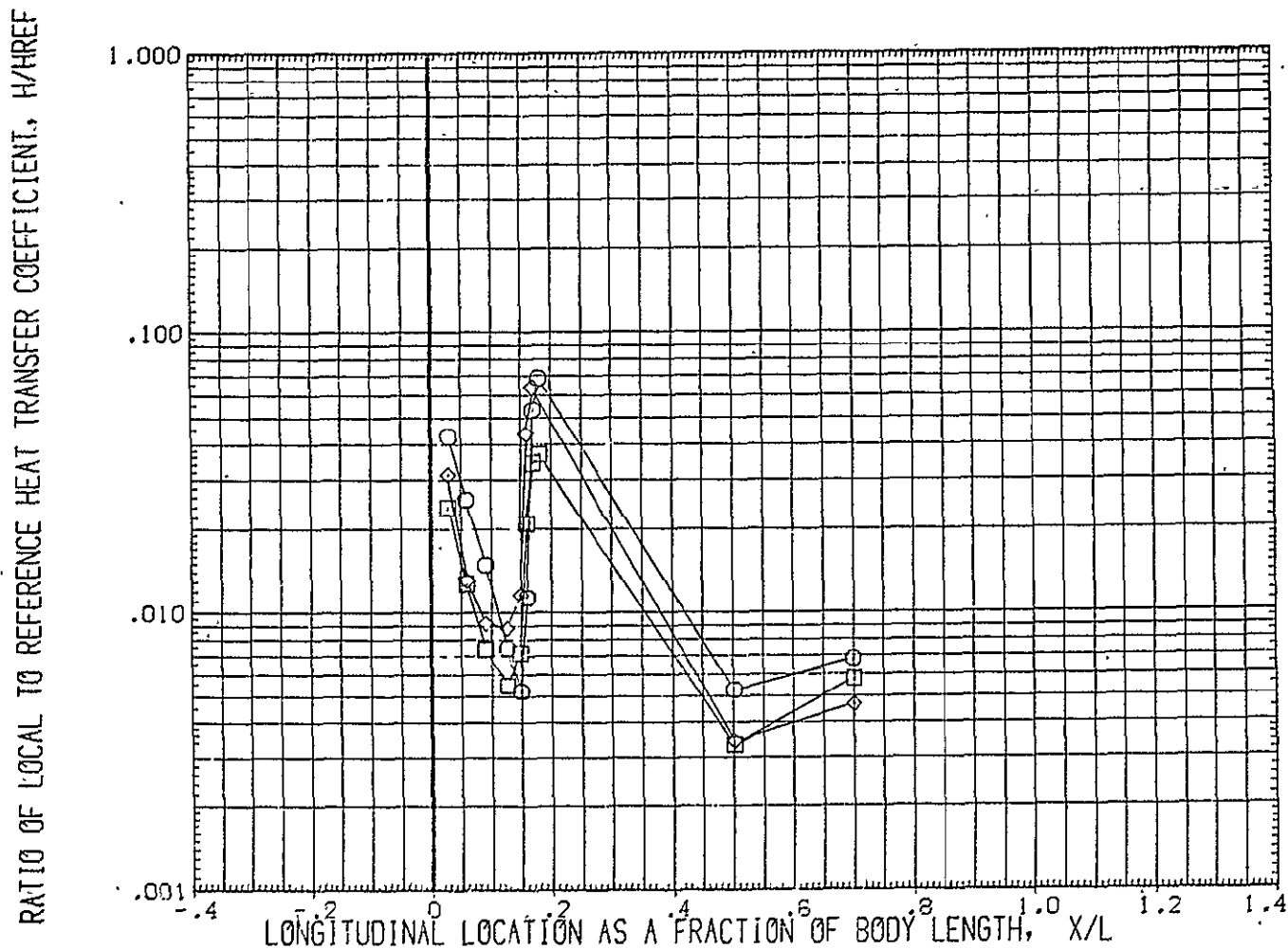


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L3$

MACH = 12.030 HAW/HT = .900 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGB15)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(PUGB16)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(PUGB17)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000

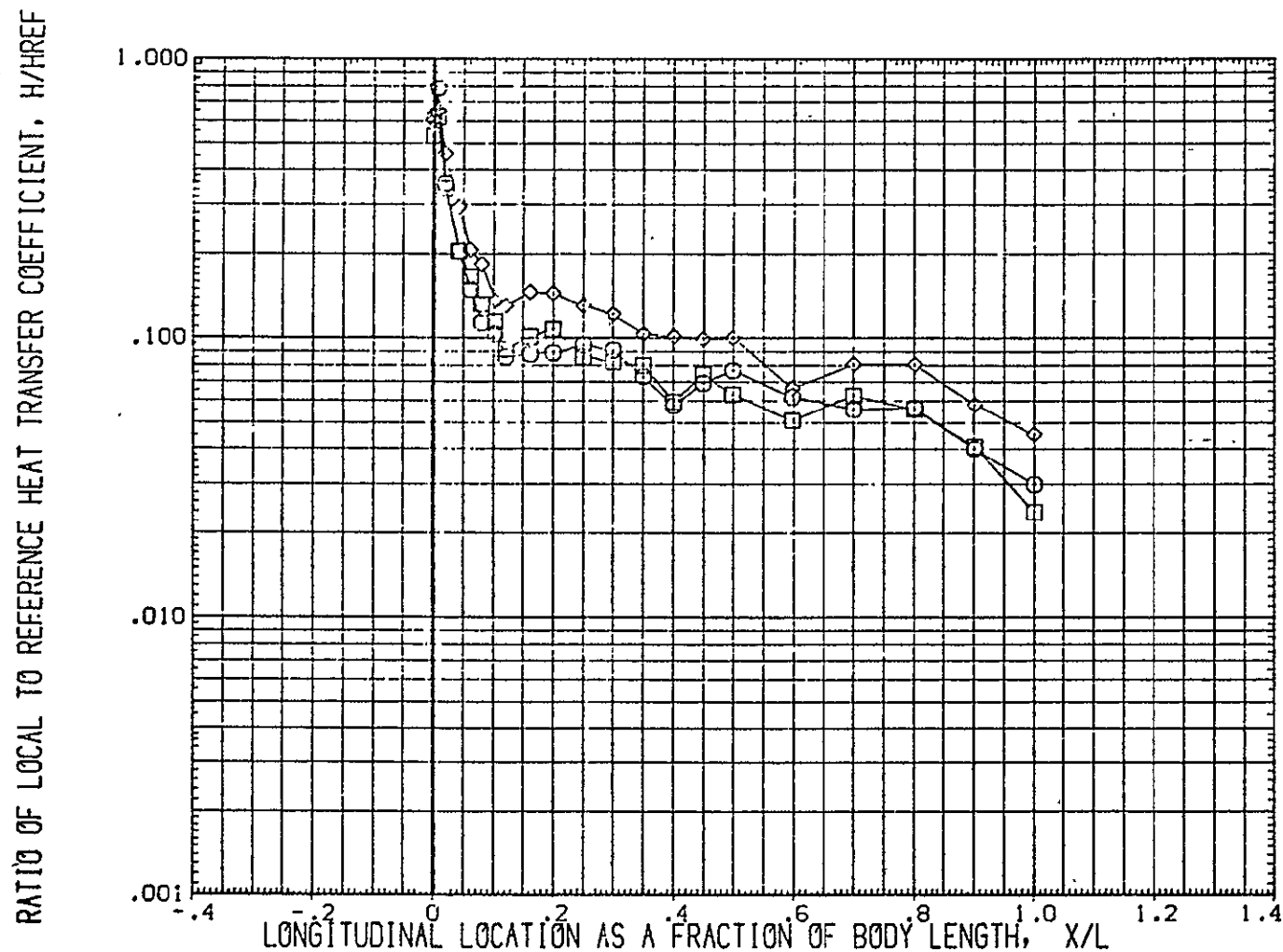


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L3$
MACH = 12.030 HAW/HT= 1.000 PHI = .000 PAGE 759

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	25.000
(RUGB16)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	30.000
(RUGB17)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	35.000

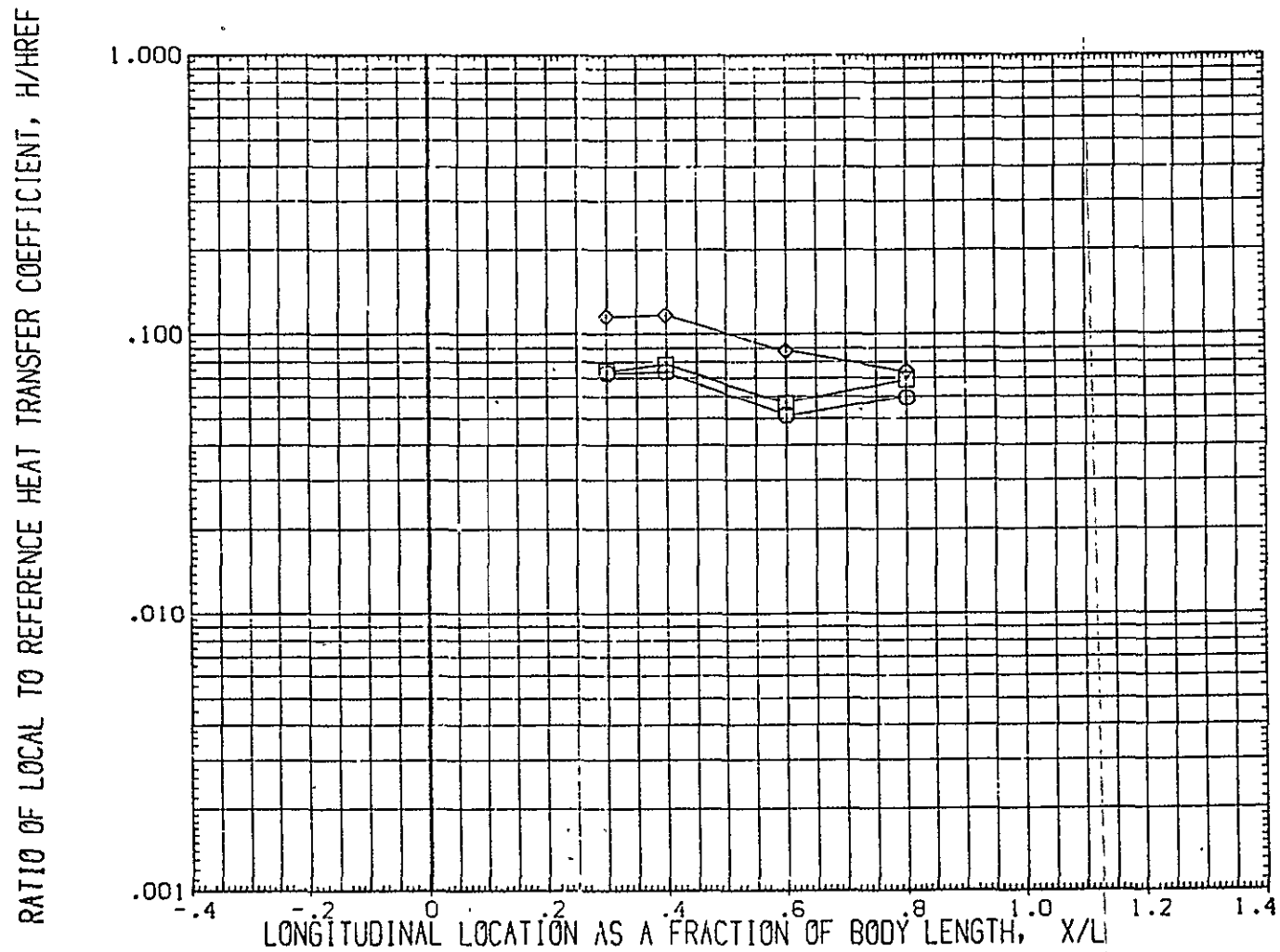


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L^3

MACH = 12.030 HAW/HT = 1.000 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUSB15)	CH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	25.000
(RUSB16)	CH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	25.000
(RUSB17)	CH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	35.000

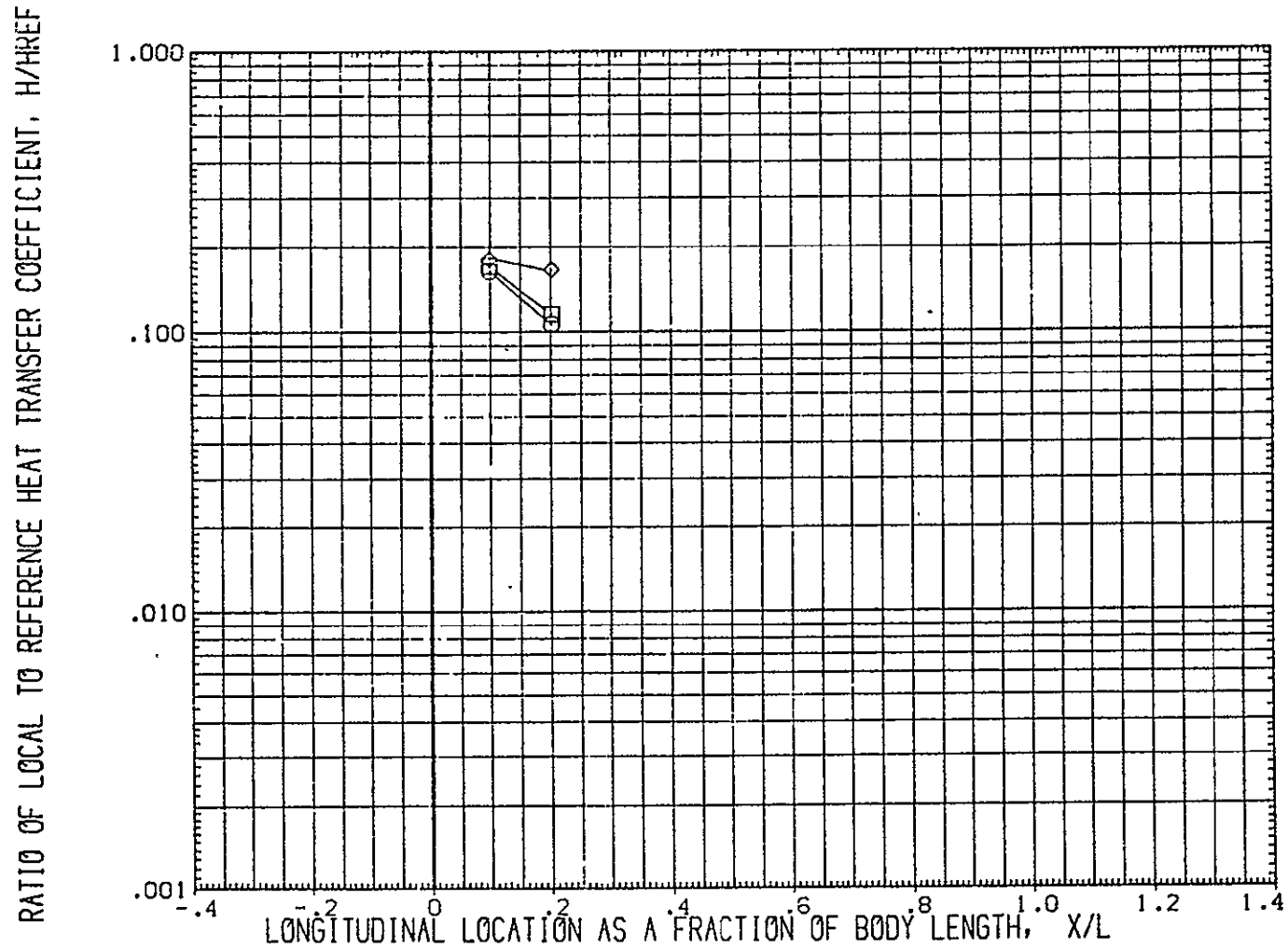


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L3$

MACH = 12.030 HAW/HT = 1.000 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUG915)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUG916)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 30.000	.000
(RUG917)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000

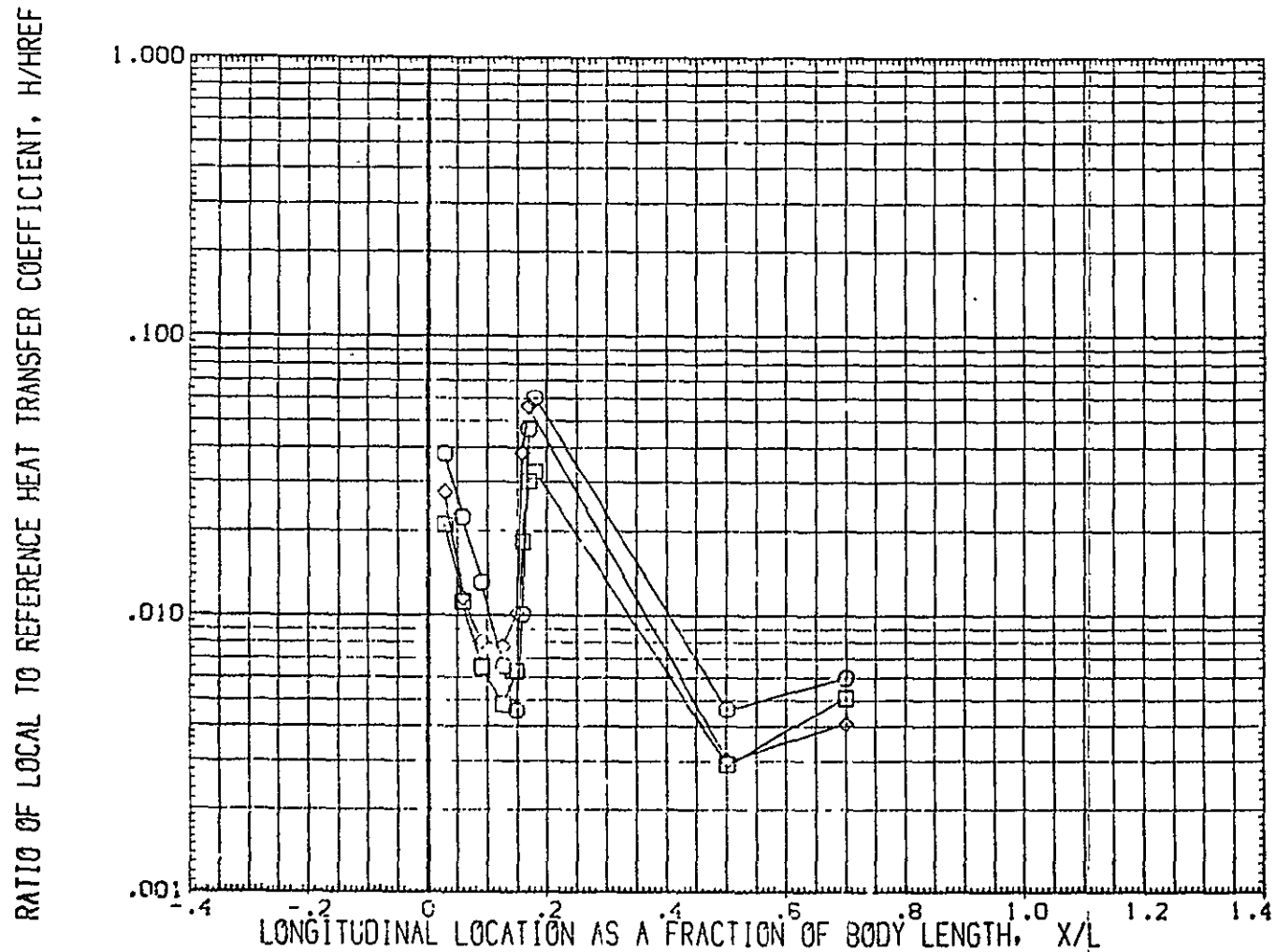


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L3$
MACH = 12.030 HAW/HT= 1.000 PHI = 180.000 PAGE 762

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(PUGB15)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB16)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB17)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000

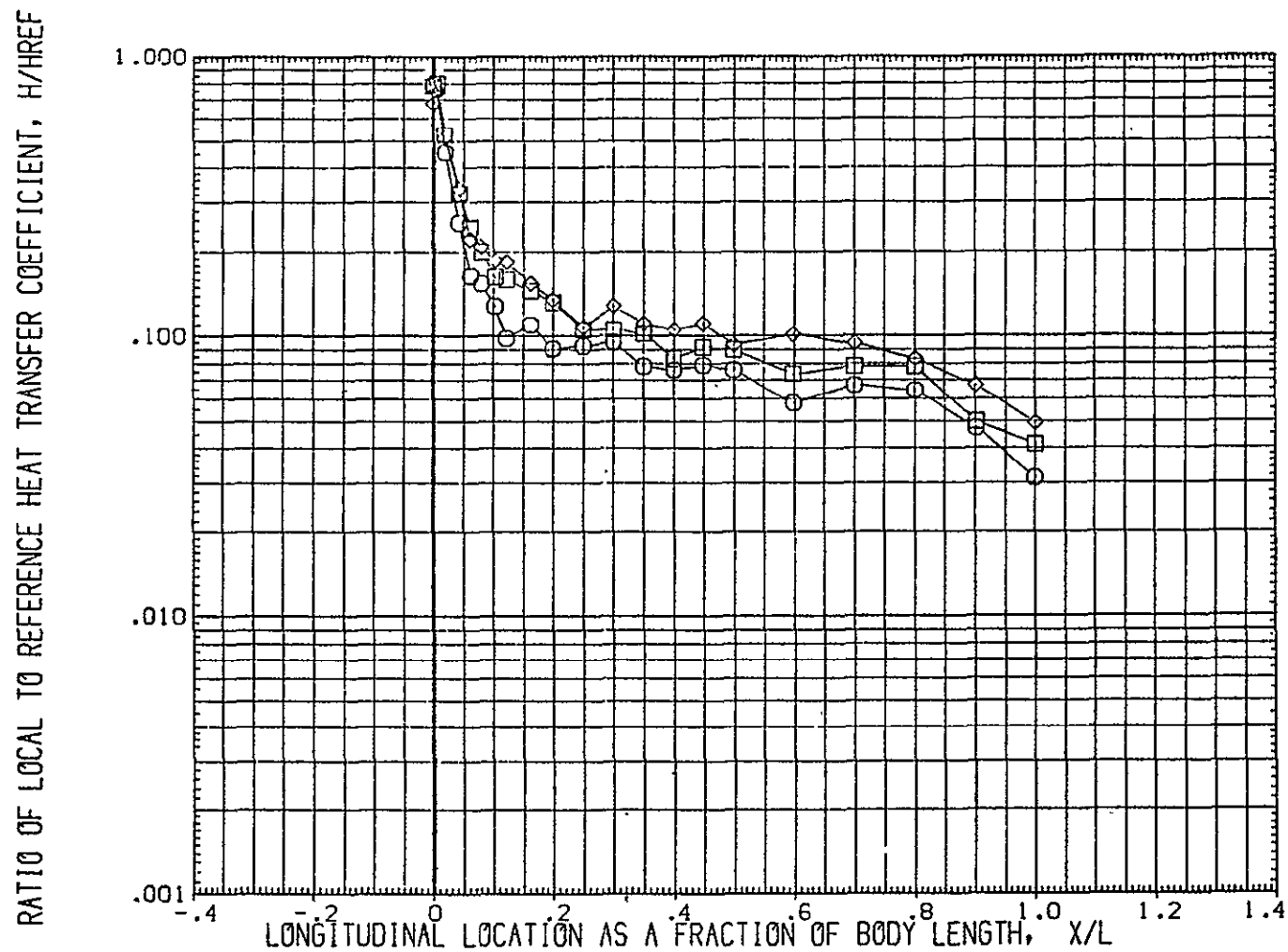


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L3$

MACH = 15.720 HAW/HT = .850 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	CH12/1H21 (CAL HST 173-100) 37 0	FLSELAG	25.000
(RUGB16)	CH12/1H21 (CAL HST 173-100) 37 0	FLSELAG	30.000
(RUGB17)	CH12/1H21 (CAL HST 173-100) 37 0	FLSELAG	35.000

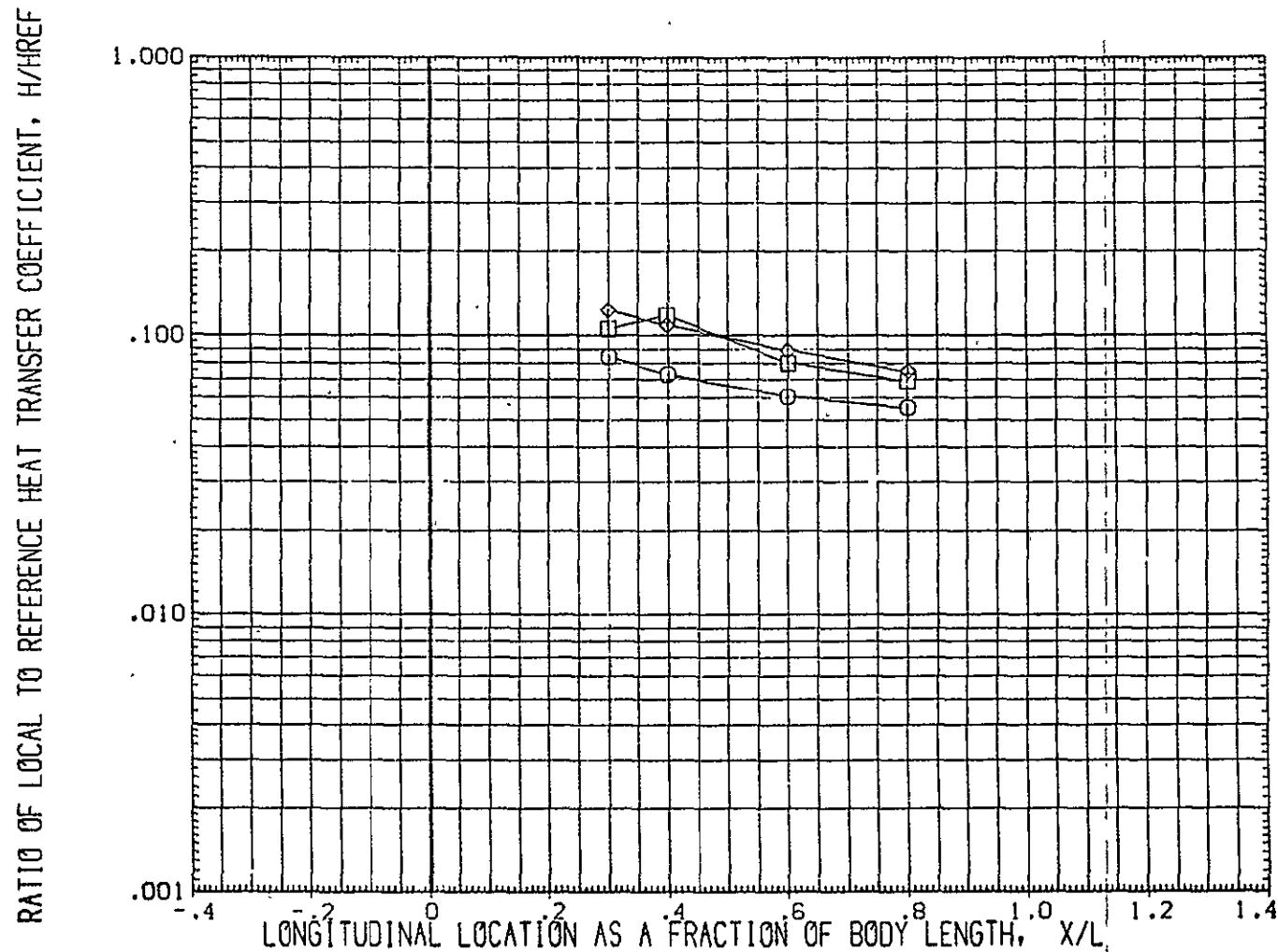


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L3$

MACH = 15.720 HAW/HT = .850 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	25.000 .000
(RUGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	30.000 .000
(RUGB17)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	35.000 .000

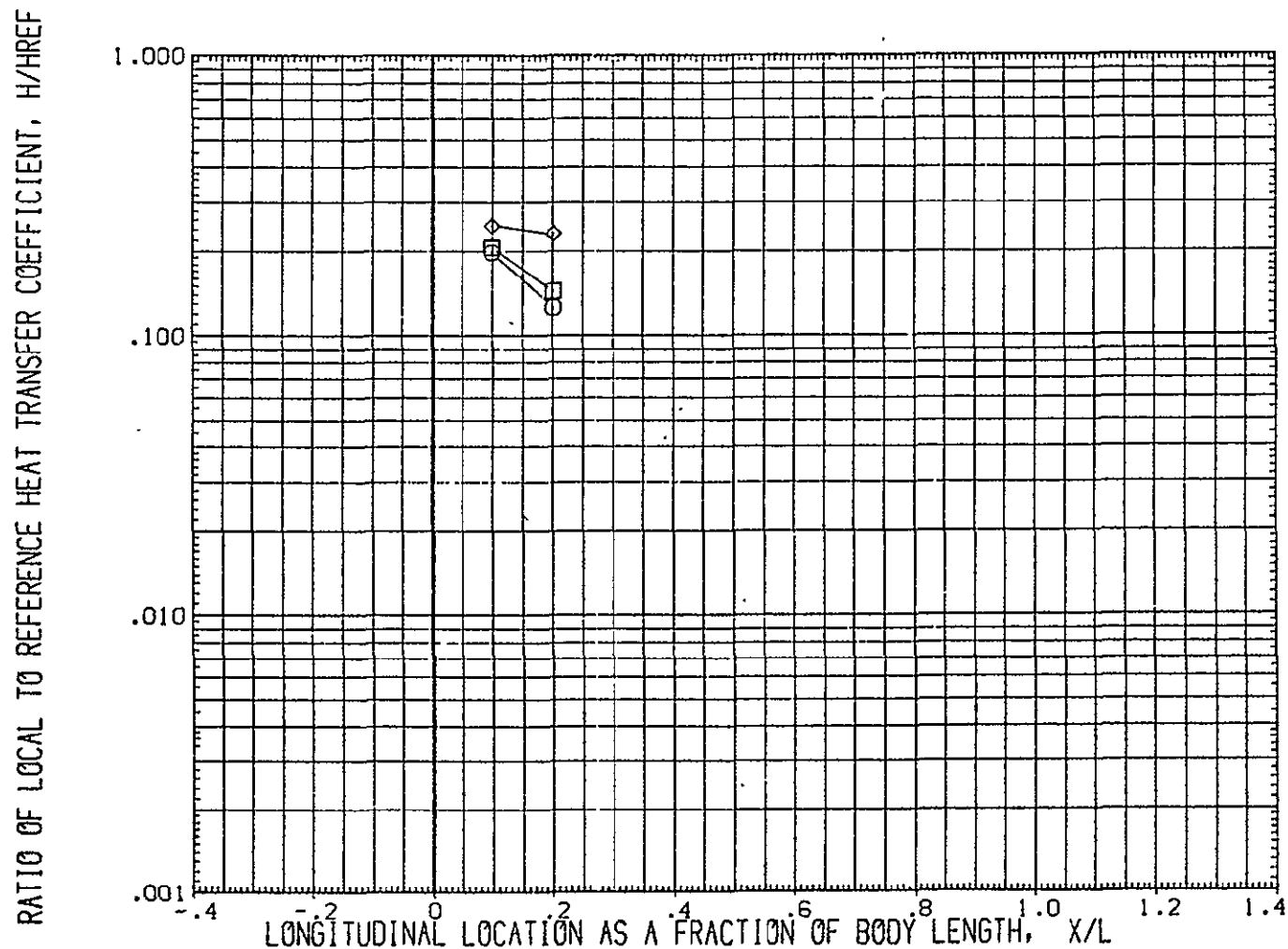


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L3

MACH = 15.720 HAW/HT = .850 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FLSEFLAGE	25.000
(RUGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FLSFLAGE	30.000
(RUGB17)	OH12/1H21 (CAL HST 173-100) 37 0	FLSEFLAGE	35.000

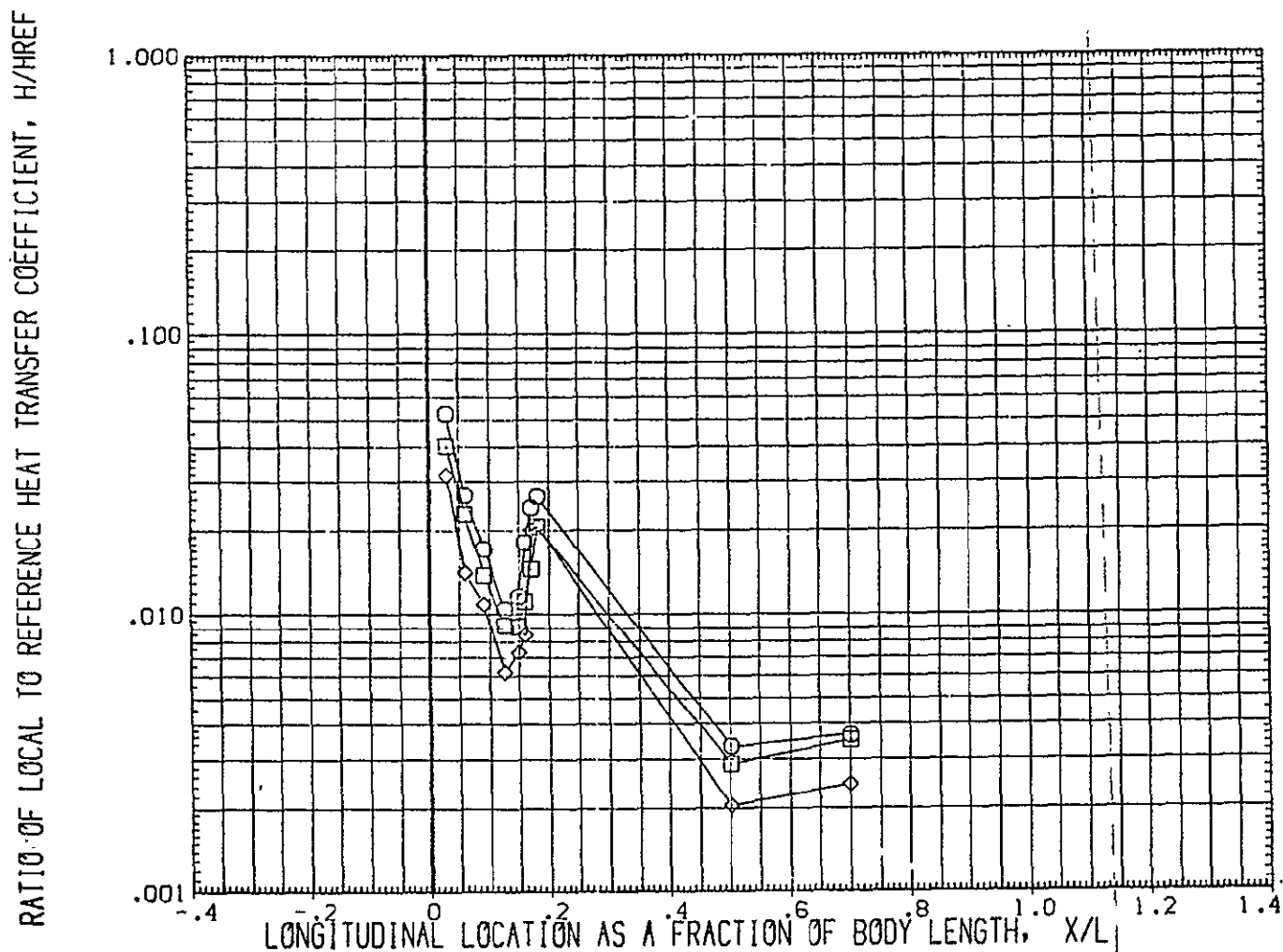


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L3$

MACH = 15.720 HAW/HT = .850 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	BETA
(PUGB15)	CH12/1421 (CAL HST 173-100)	37 0	FLSELAGE	75.000 .000
(PUGB16)	CH12/1421 (CAL HST 173-100)	37 0	FLSELAGE	30.000 .000
(PUGB17)	CH12/1421 (CAL HST 173-100)	37 0	FLSELAGE	35.000 .000

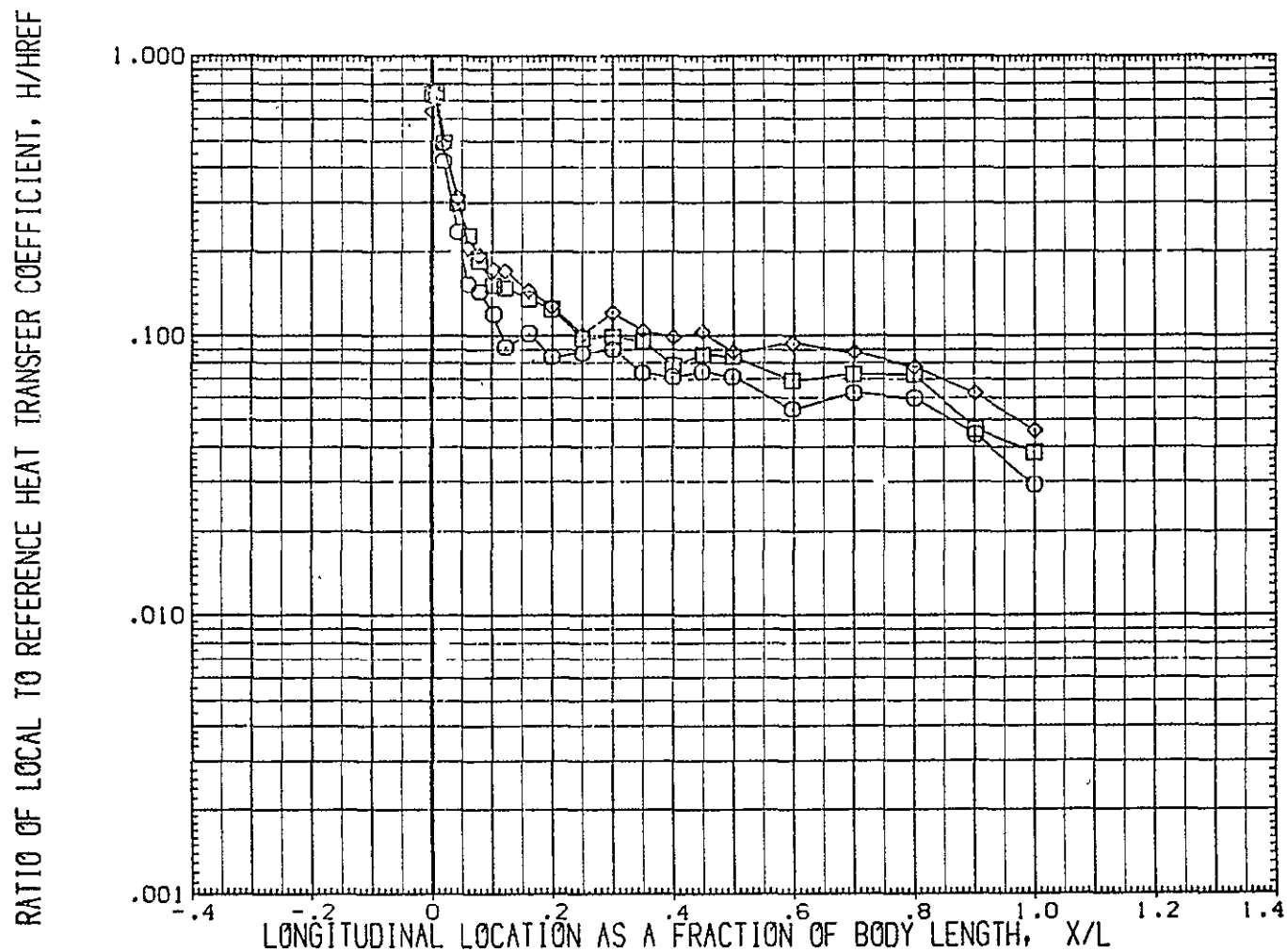


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L3$
MACH = 15.720 HAW/HT = .900 PHI = .000 PAGE 767

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 30.000	.000
(RUGB17)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000

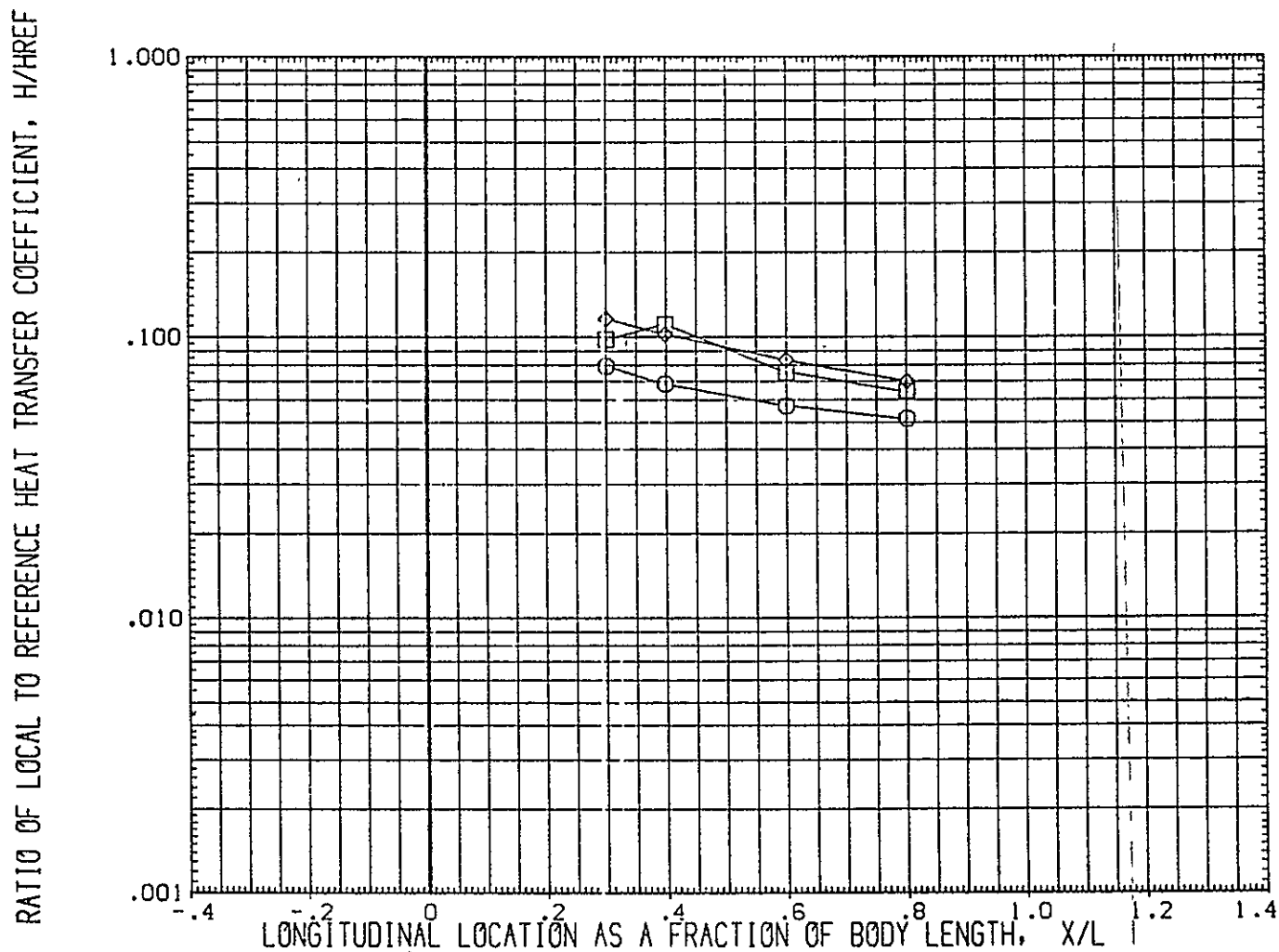


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L^3

MACH = 15.720 HAW/HT = .900 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 30.000	.000
(RUGB17)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000

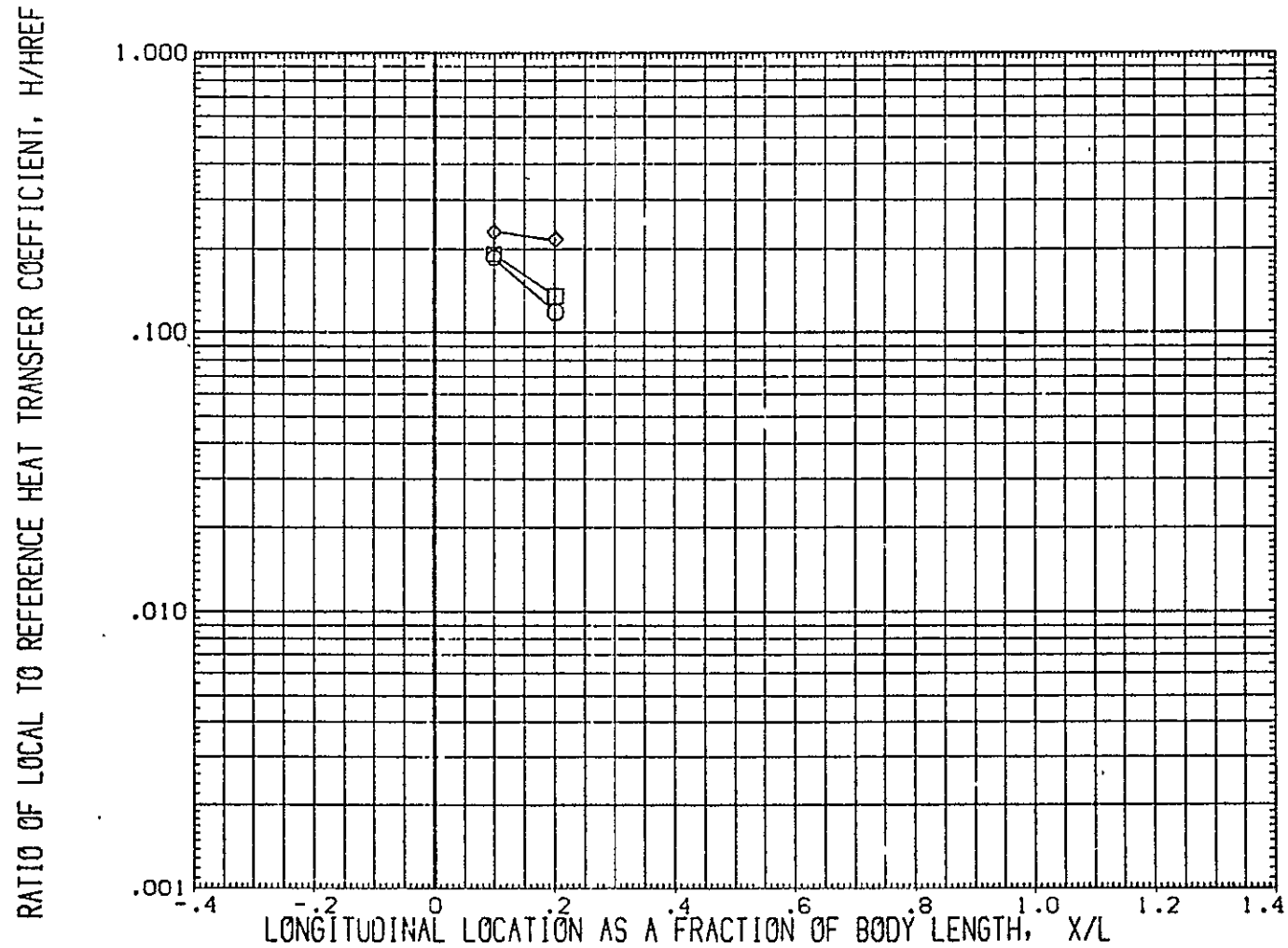


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L3

MACH = 15.720 HAW/HT= .900 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	0412/1421 (CAL HST 173-100) 37 0 FUSELAGE	25.000	.000
(RUGB16)	0412/1421 (CAL HST 173-100) 37 0 FUSELAGE	30.000	.000
(RUGB17)	0412/1421 (CAL HST 173-100) 37 0 FUSELAGE	35.000	.000

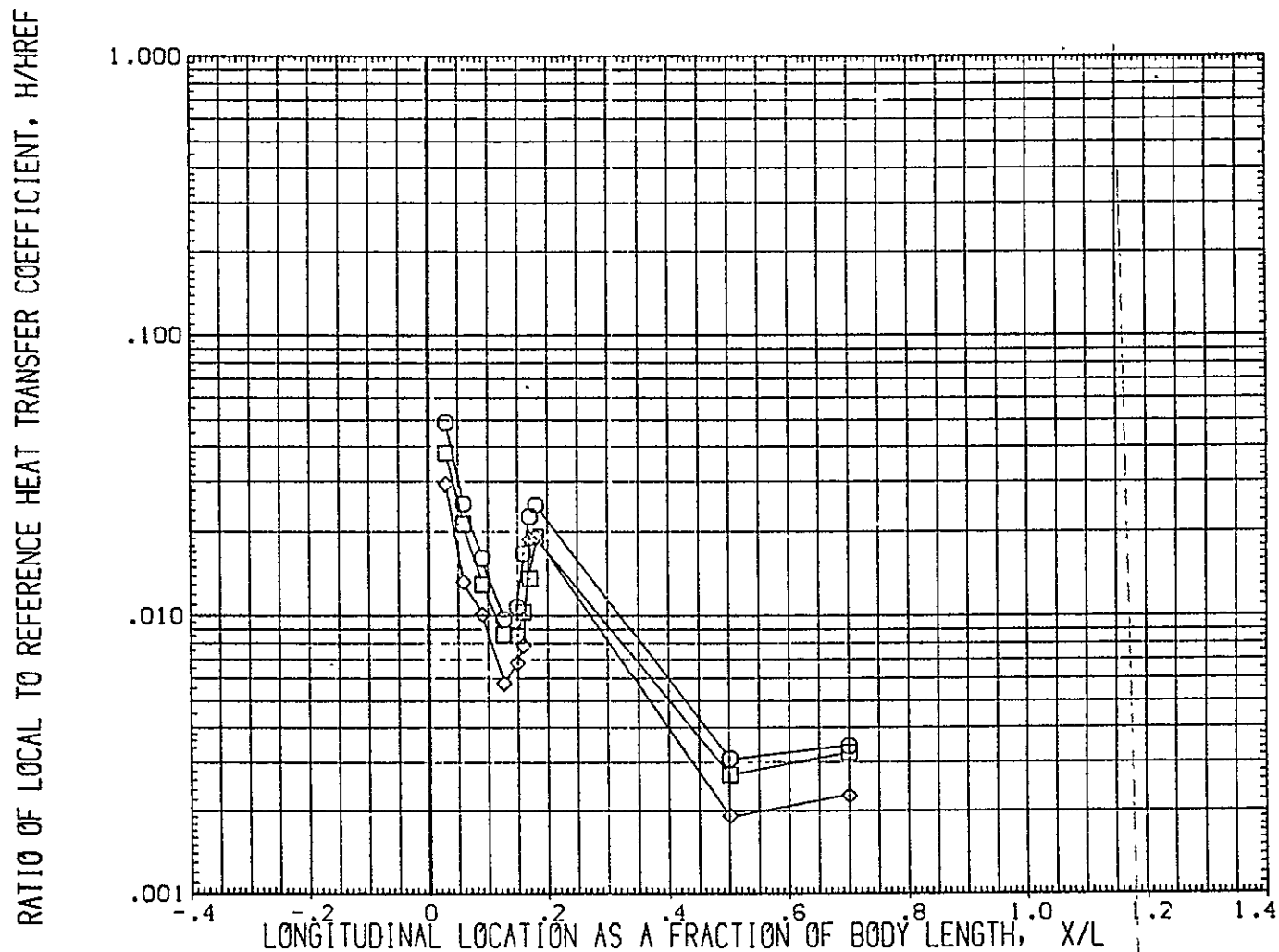


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L3

MACH = 15.720 HAW/HT= .900 PHI = 180.000

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	○	OH12/H21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUGB16)	□	OH12/H21 (CAL HST 173-100) 37 0	FUSEL/3E 30.000	.000
(RUGB17)	◇	OH12/H21 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000

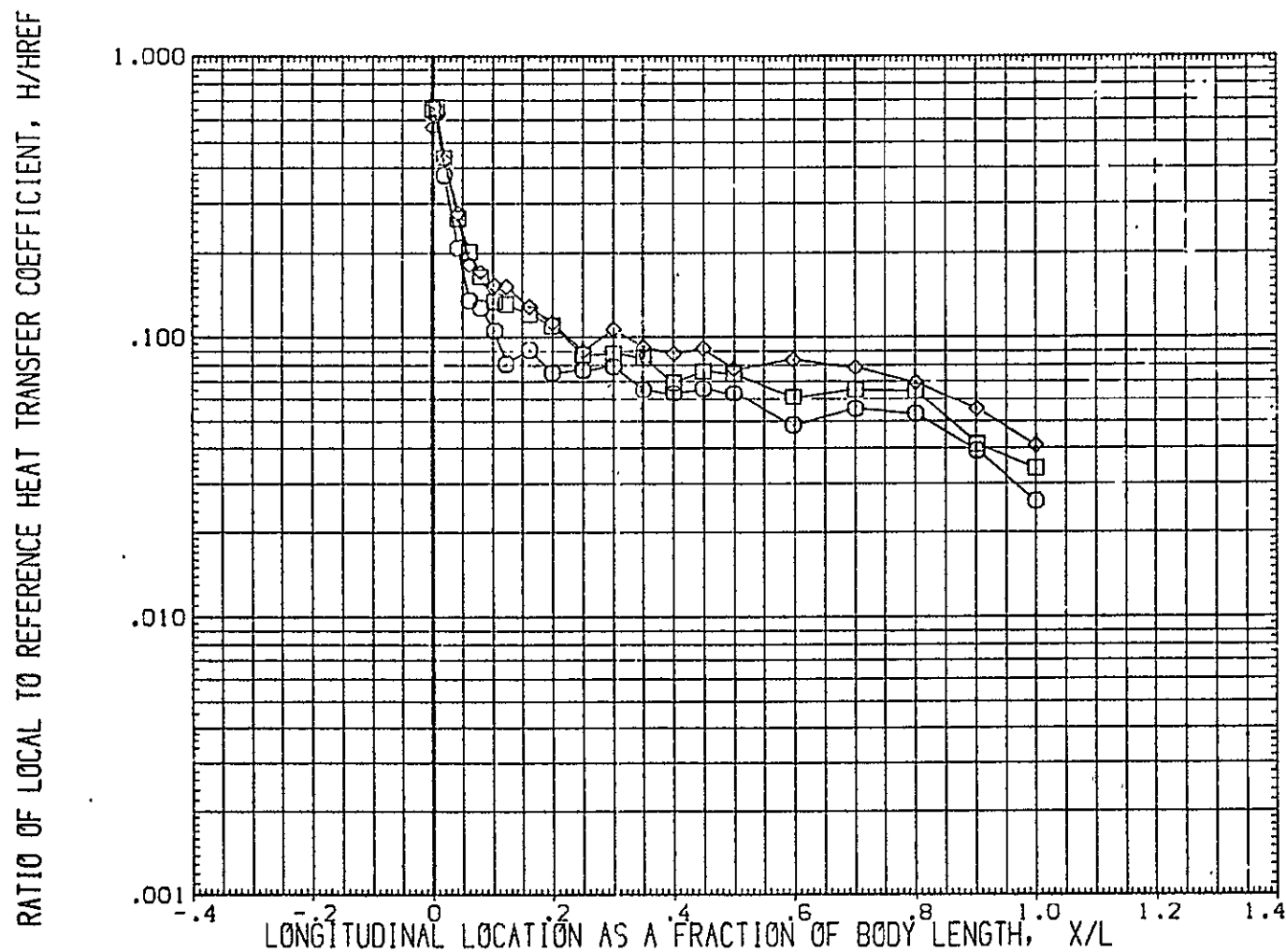


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L3

MACH = 15.720 HAW/HT= 1.000 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 30.000	.000
(RUGB17)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000

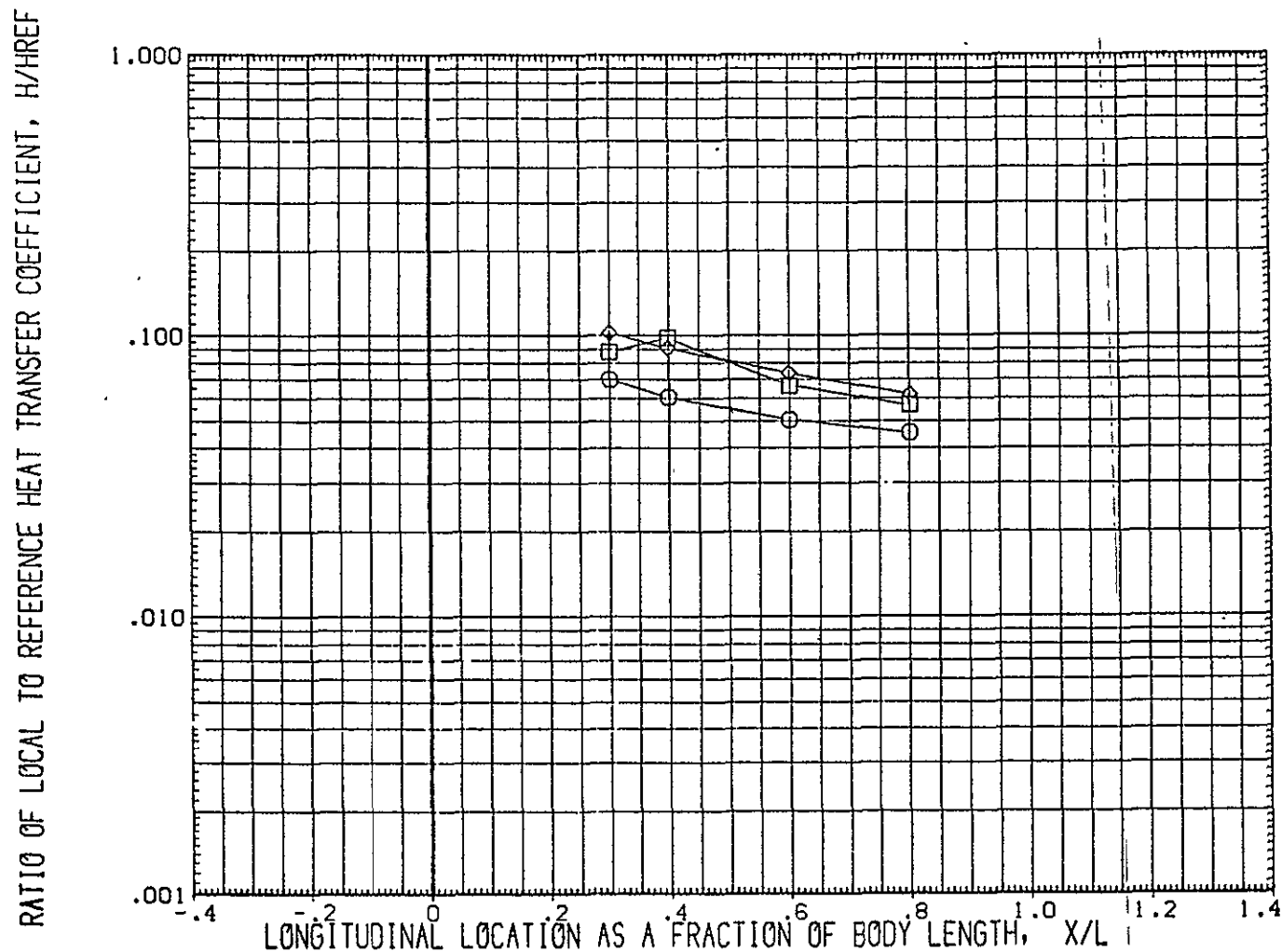


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER $RN/L3$

MACH = 15.720 HAW/HT= 1.000 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 30.000	.000
(RUGB17)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000

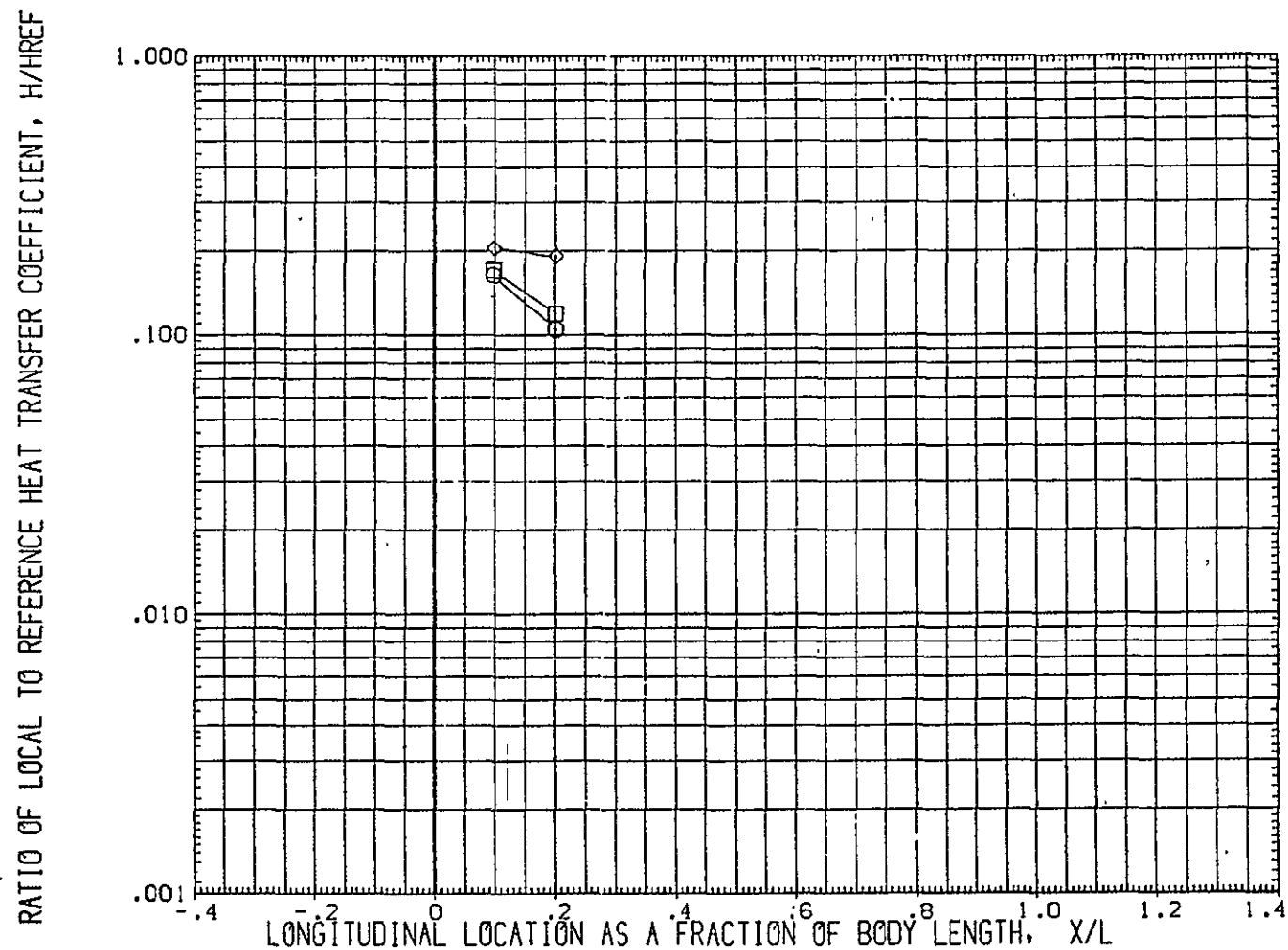


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L3

MACH = 15.720 HAW/HT= 1.000 PHI = 30.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 25.000	.000
(RUGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 30.000	.000
(RUGB17)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE 35.000	.000

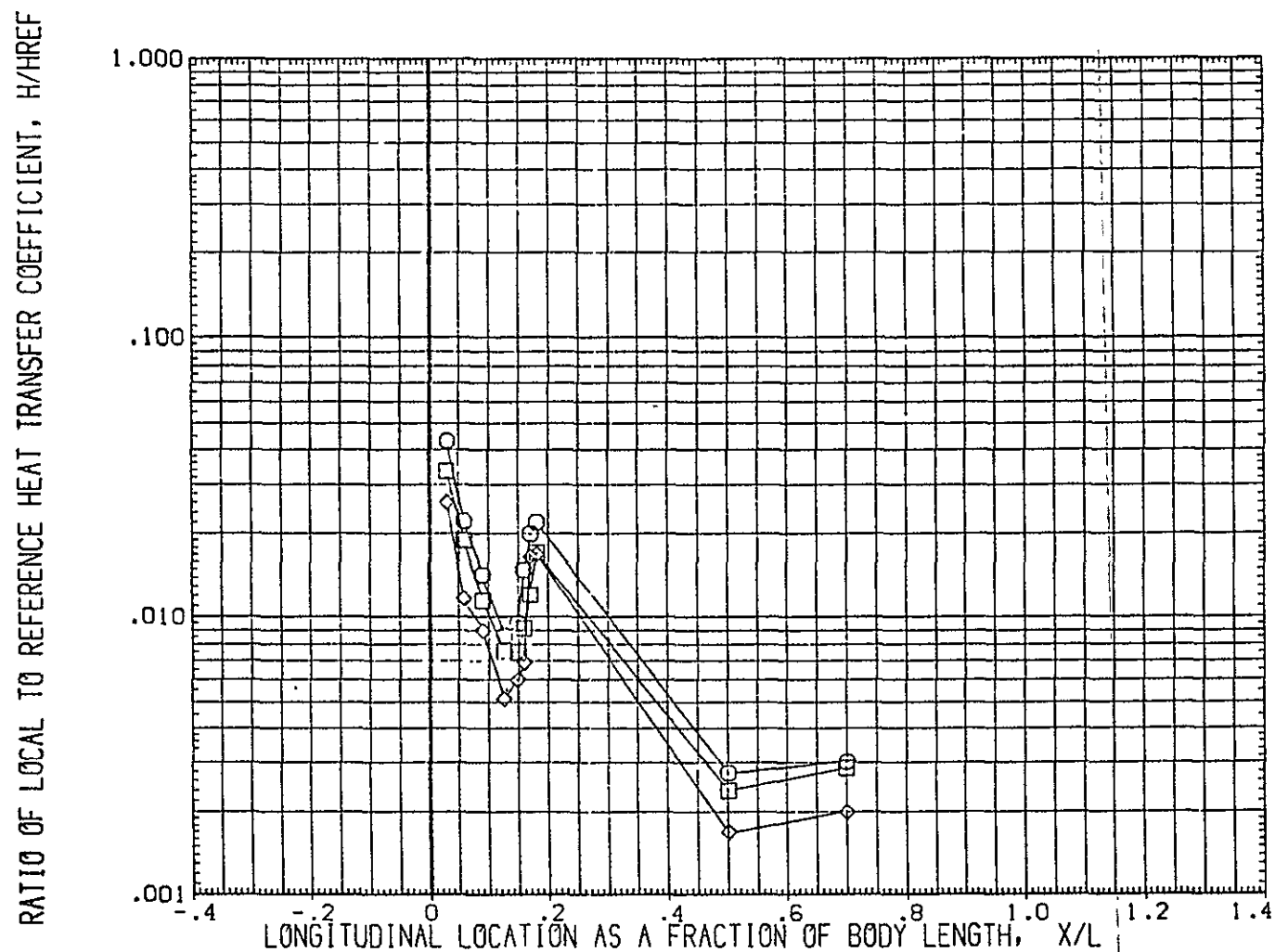


FIG. 24 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER BODY HEAT TRANSFER RN/L3
MACH = 15.720 HAW/HT= 1.000 PHI = 180.000 PAGE 774

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

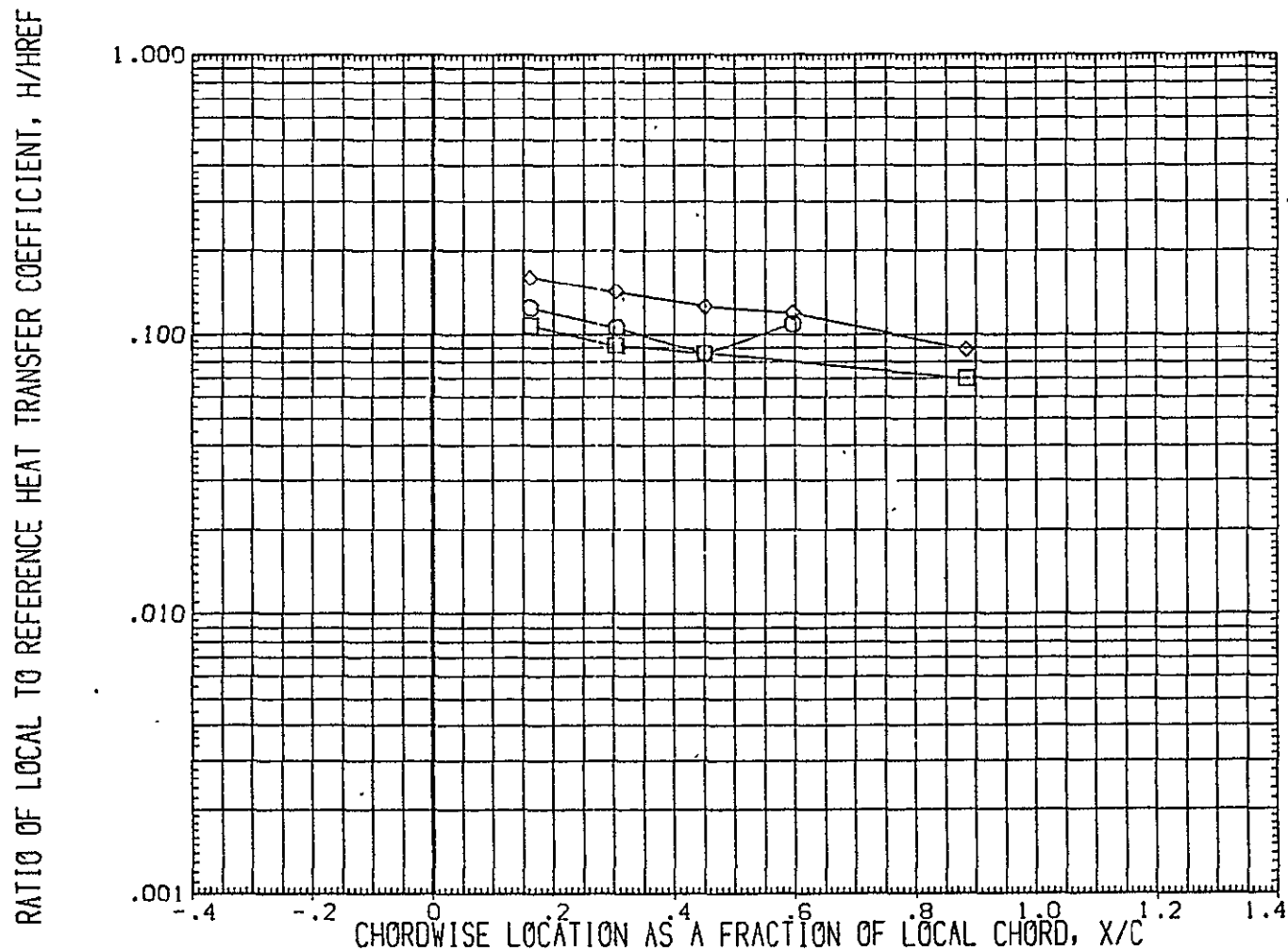


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L3

MACH = 12.030 HAW/HT = .850 2Y/B = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

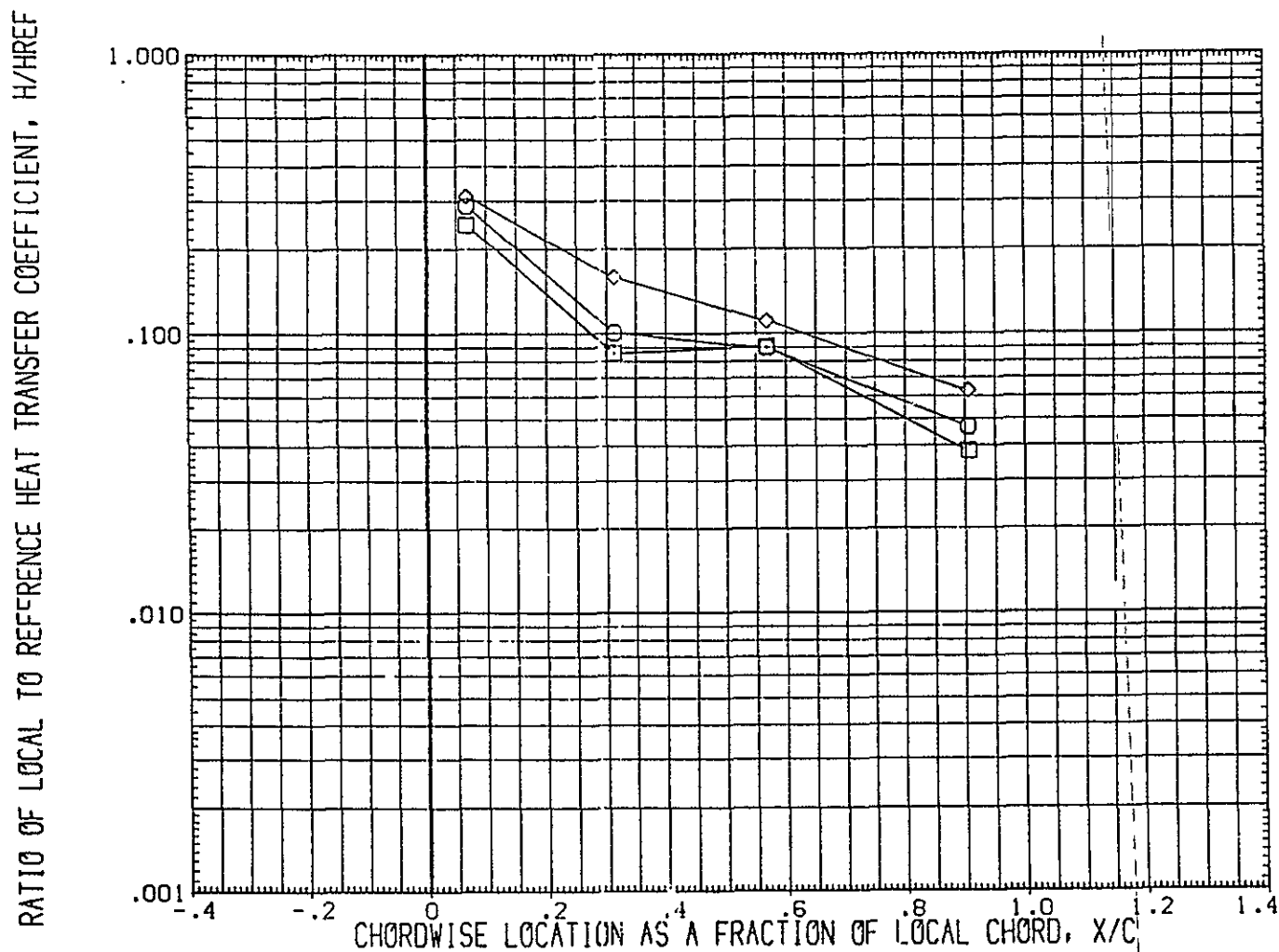


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED OPBITER WING HEAT TRANSFER RN/L3

MACH = 12.030 HAW/HT= .850 2Y/B = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV15)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV16)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV17)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

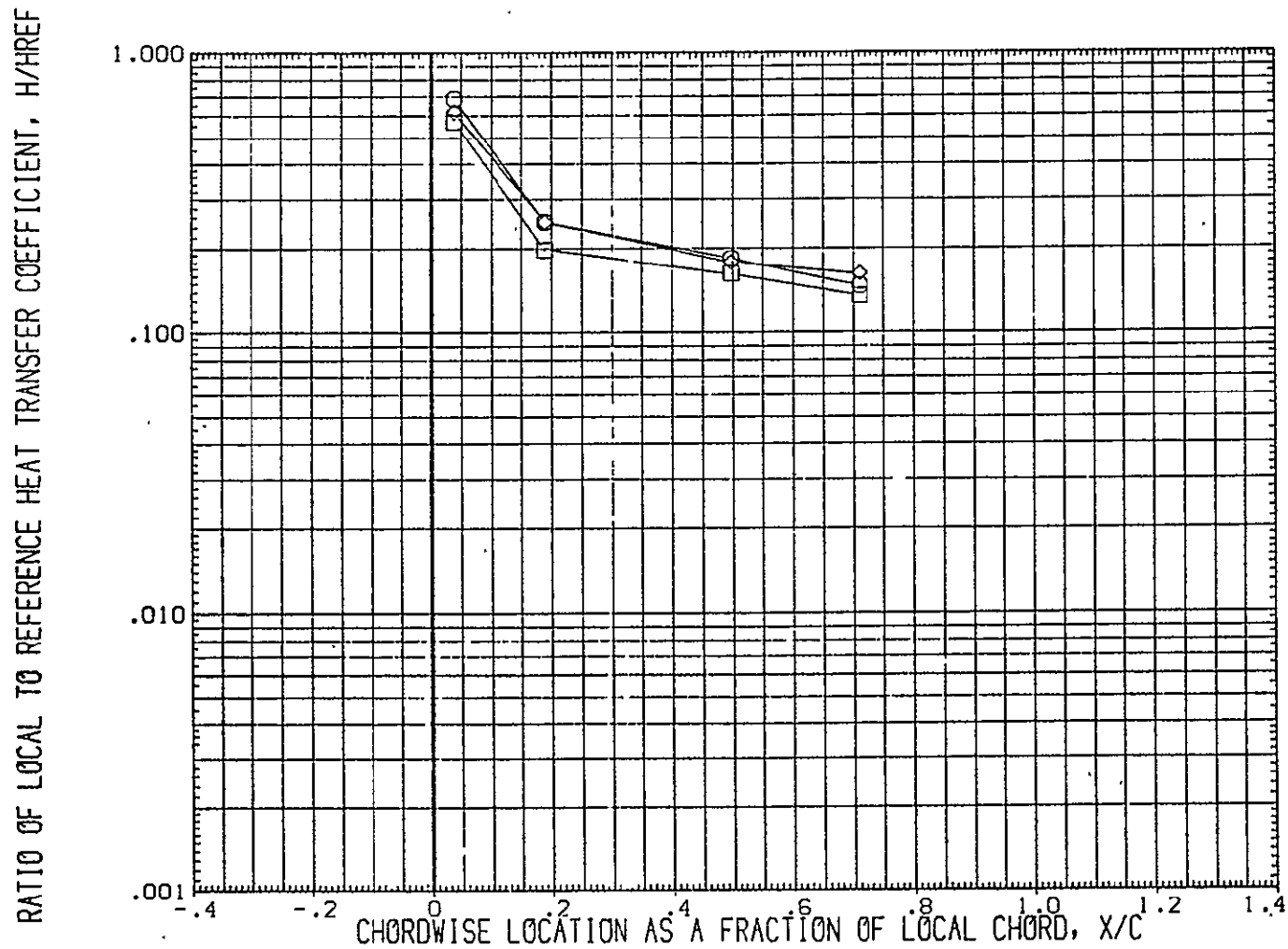


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L3

MACH = 12.030 HAW/HT= .850 2Y/B = .500

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

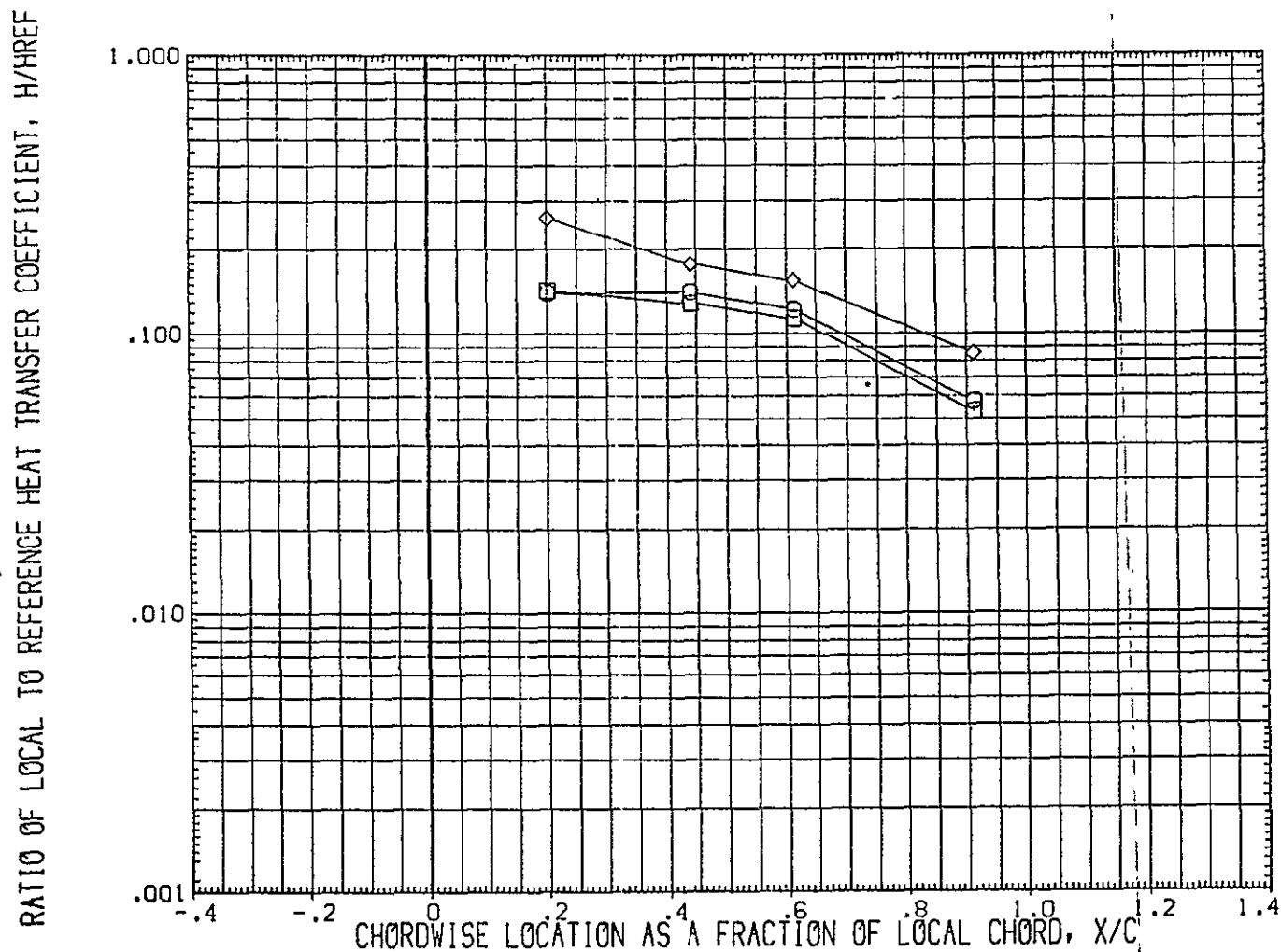


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$
MACH = 12.030 HAW/HT = .850 $2Y/B$ = .600 PAGE 778

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

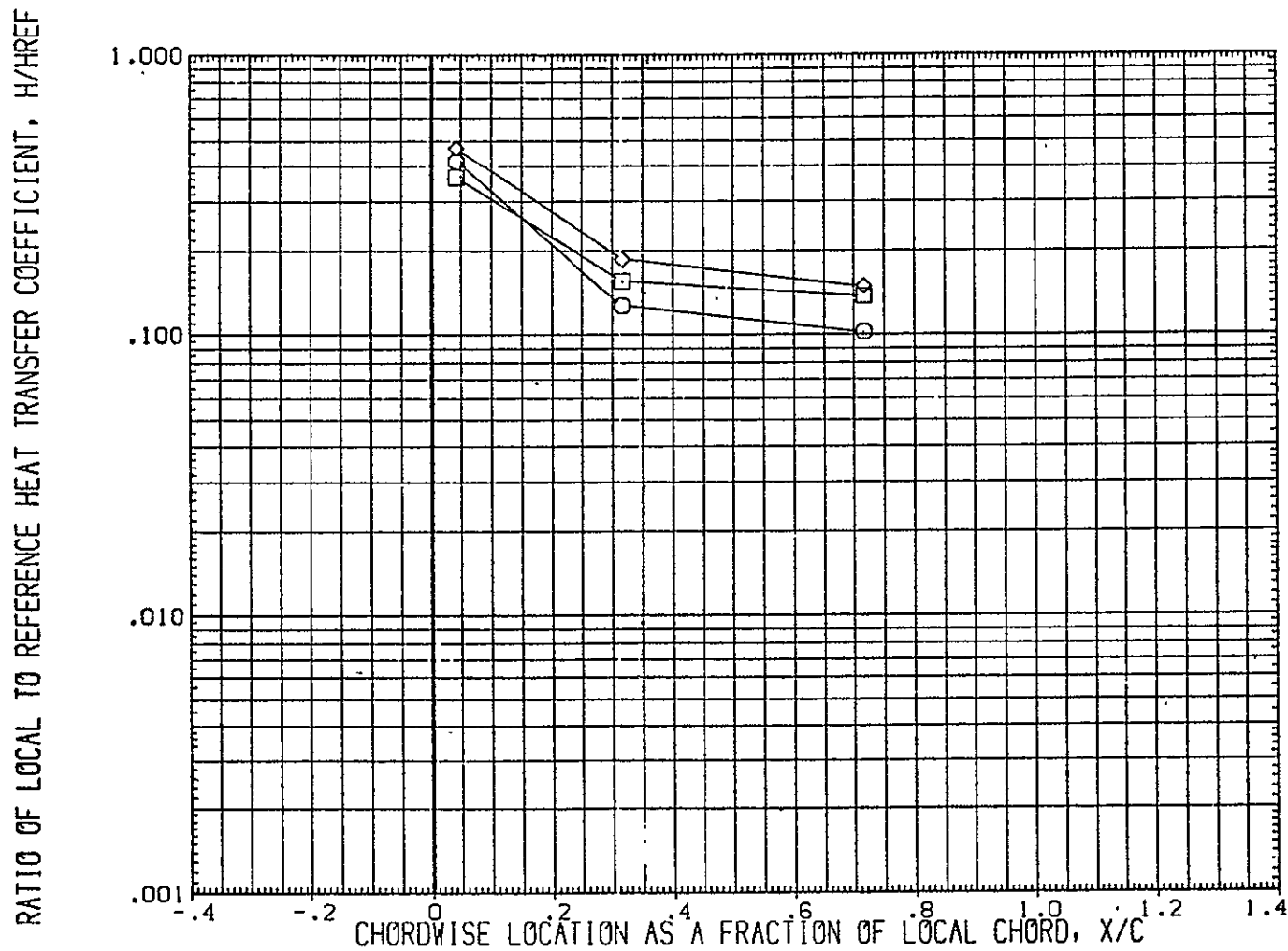


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L3

MACH = 12.030 HAW/HT = .850 2Y/B = .750

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV15)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGV16)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGV17)	OH12/H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

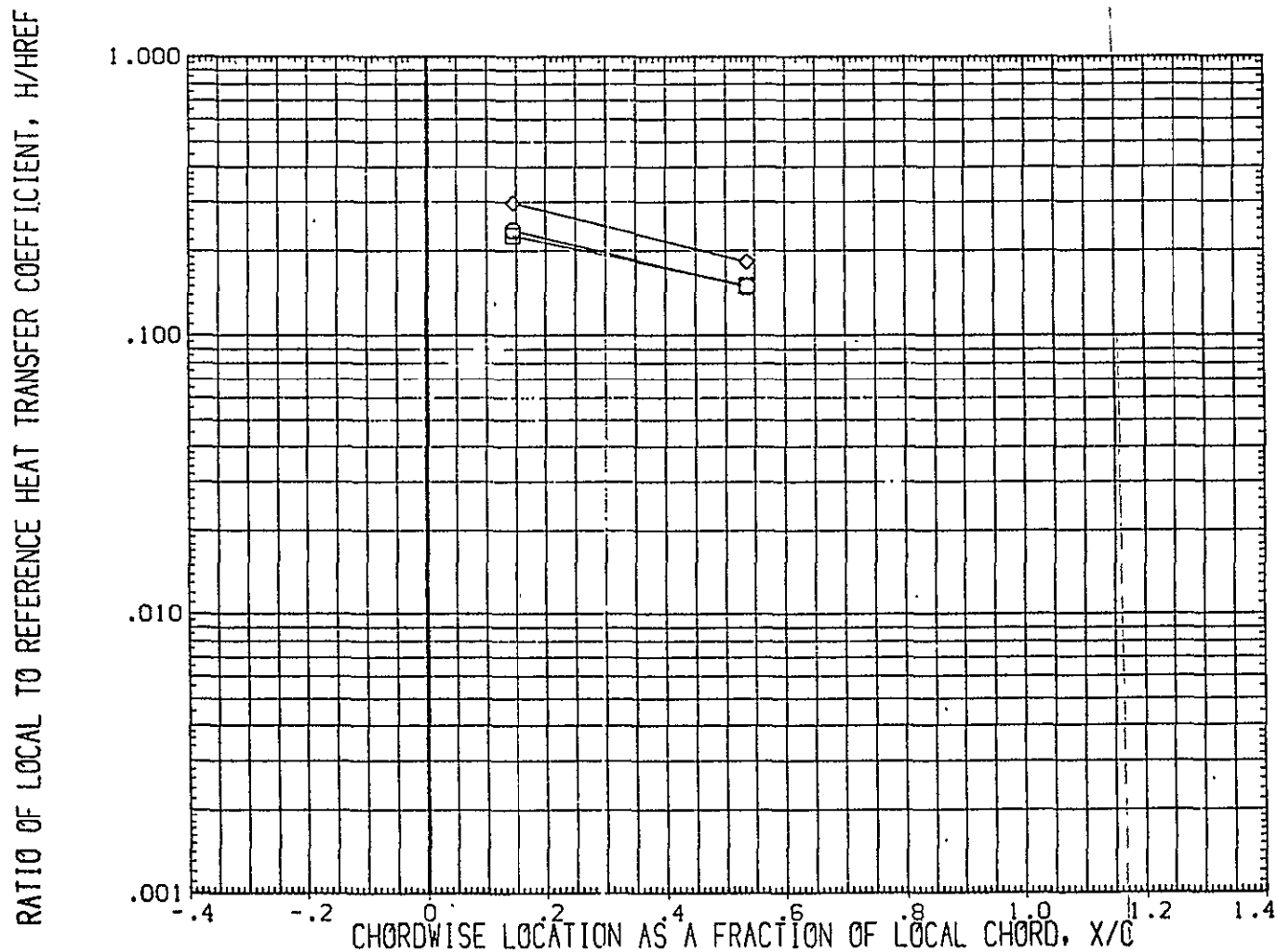


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$
MACH = 12.030 HAW/HT = .850 $2Y/B$ = .950 PAGE 780

DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION	ALPHA	BETA
(RUGW15)	□	OH12/H21	(CAL HST 173-100) 37 0	WING L.S.	25.000 .000
(RUGW16)	○	OH12/H21	(CAL HST 173-100) 37 0	WING L.S.	30.000 .000
(RUGW17)	◇	OH12/H21	(CAL HST 173-100) 37 0	WING L.S.	35.000 .000

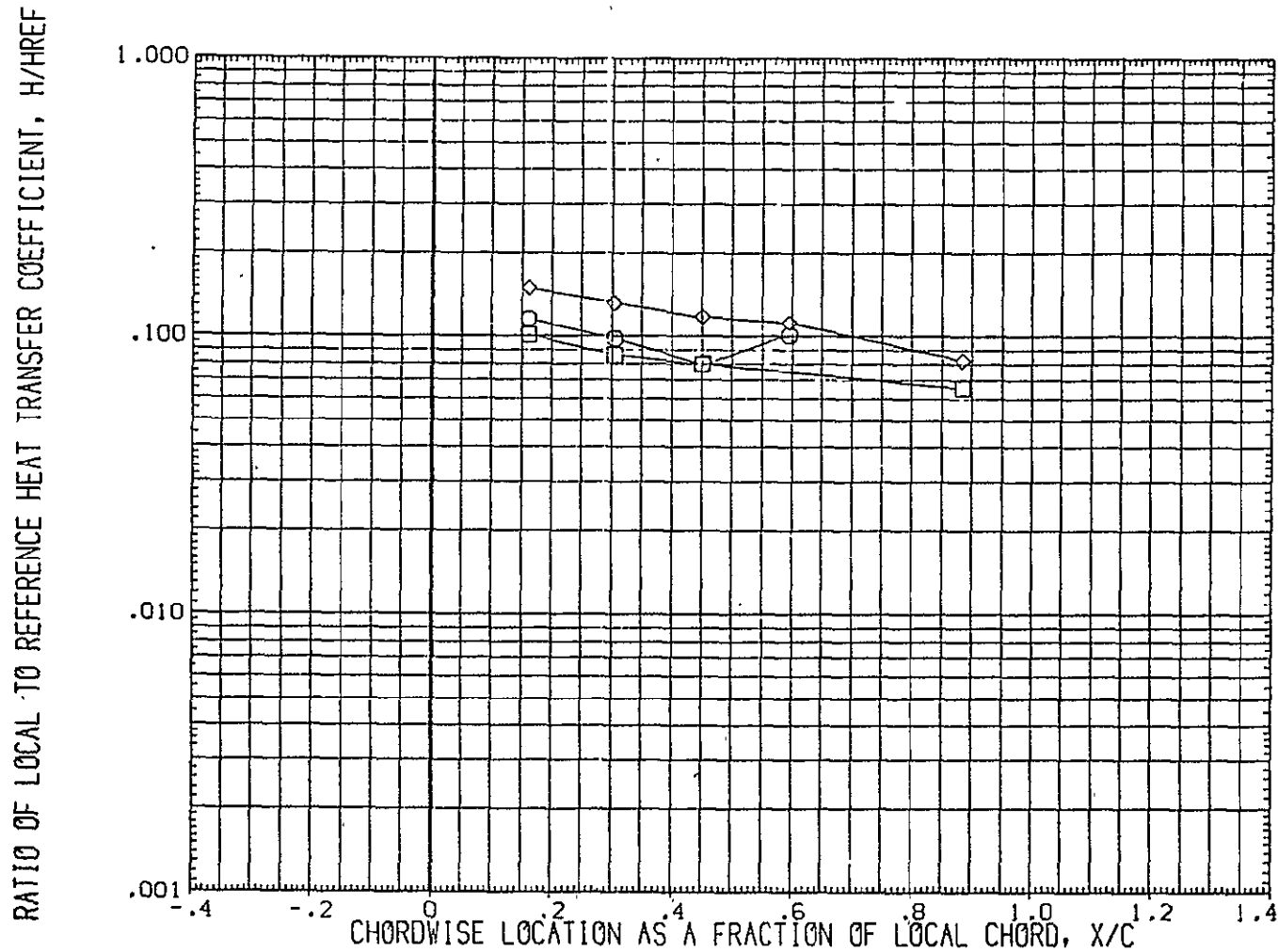


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$
MACH = 12.030 HAW/HT = .900 $2Y/B = .250$ PAGE 781

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1H21 (CAL HST 173-100) 37 9	WING L.S.	25.000 .000
(RUGW16)	OH12/1H21 (CAL HST 173-100) 37 9	WING L.S.	30.300 .000
(RUGW17)	OH12/1H21 (CAL HST 173-100) 37 9	WING L.S.	35.000 .000

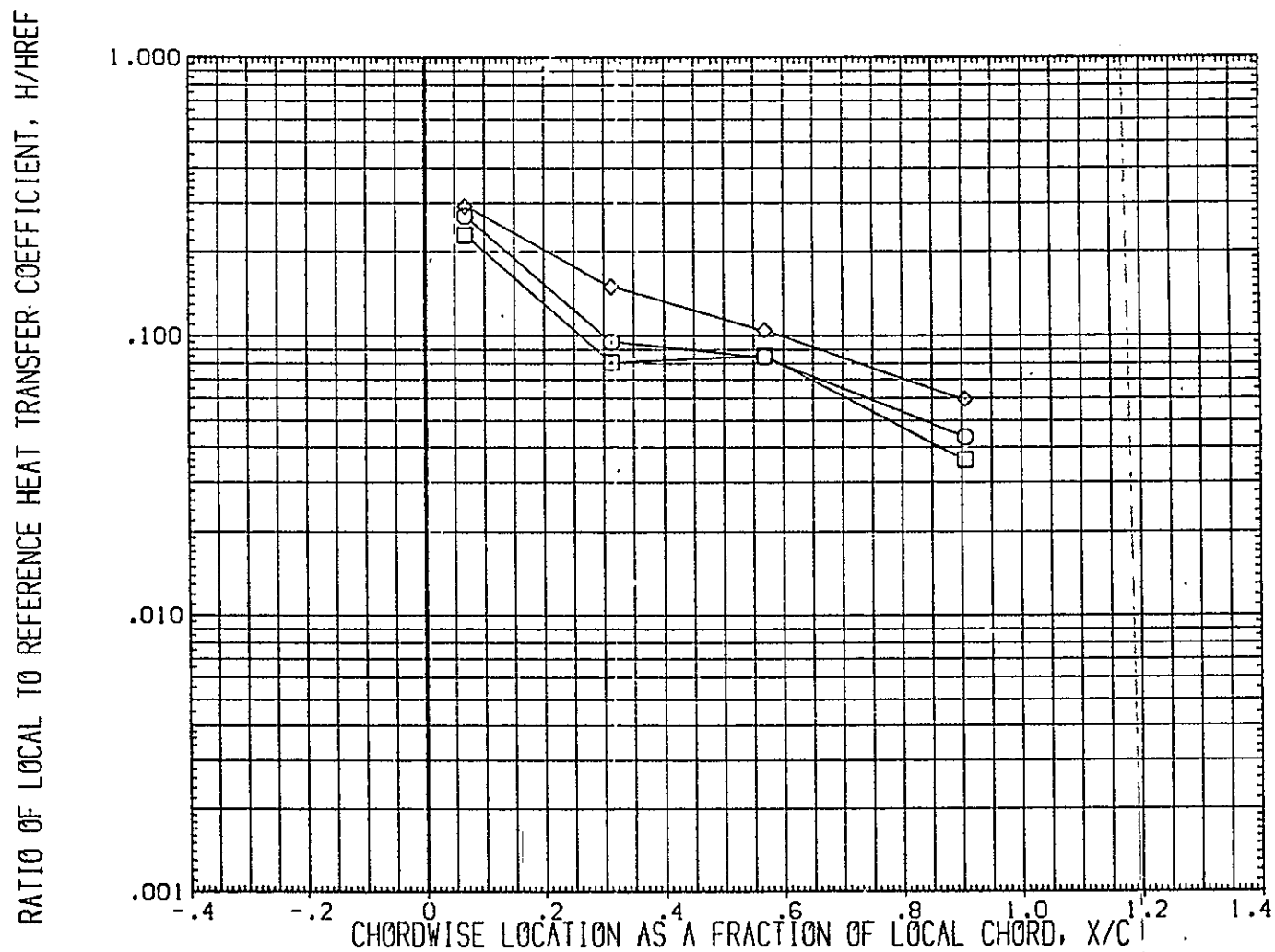


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L^3

MACH = 12.030 HAW/HT = .900 2Y/B = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	CH12/H21 (CAL HST 173-100) 37 0	WING L.S. 25.000	.000
(RUGW16)	CH12/H21 (CAL HST 173-100) 37 0	WING L.S. 30.000	.000
(RUGW17)	CH12/H21 (CAL HST 173-100) 37 0	WING L.S. 35.000	.000

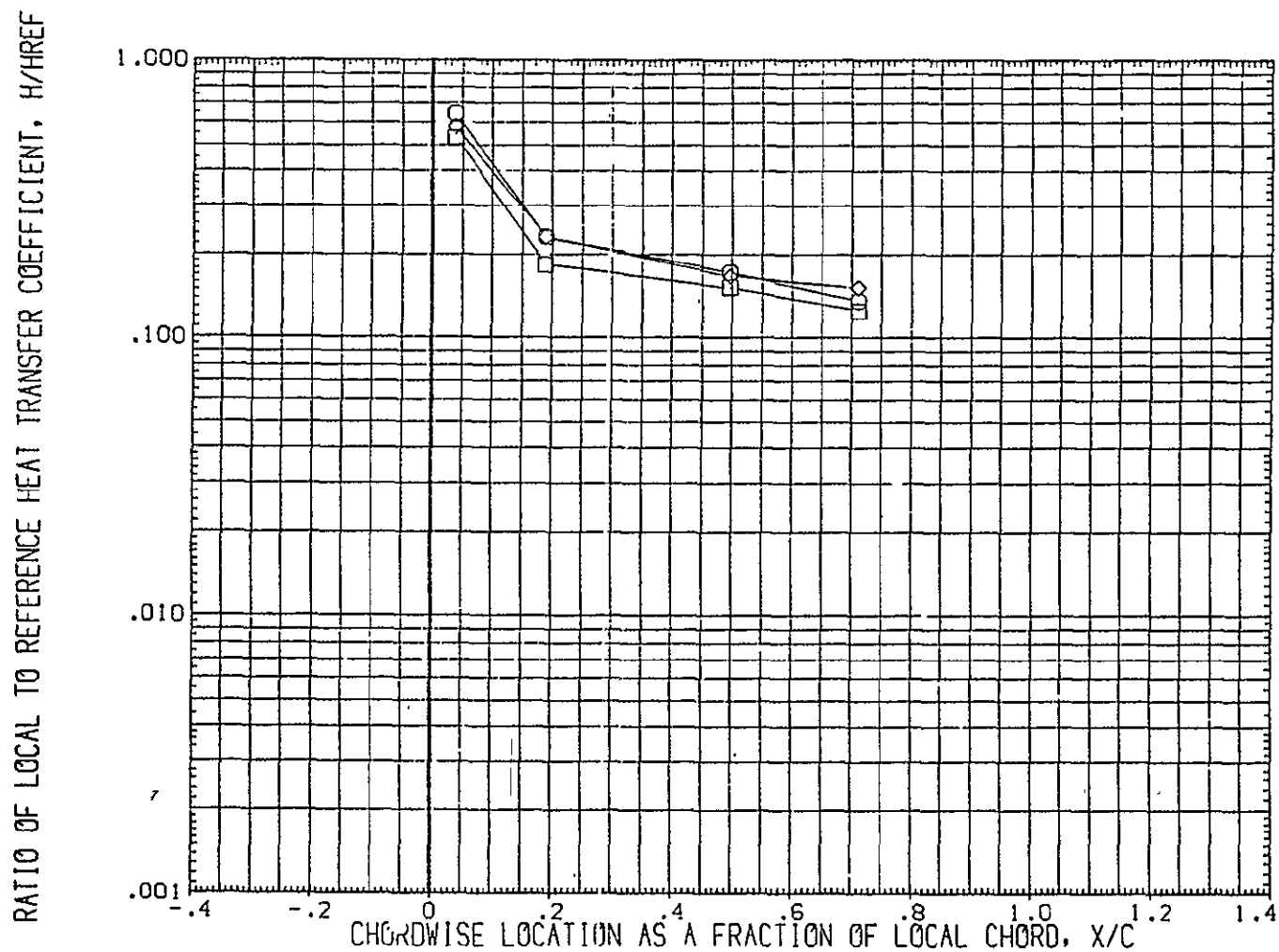


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$

MACH = 12.030 HAW/HT = .900 $2Y/B$ = .500

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	CH12/1M21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	CH12/1M21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	CH12/1M21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

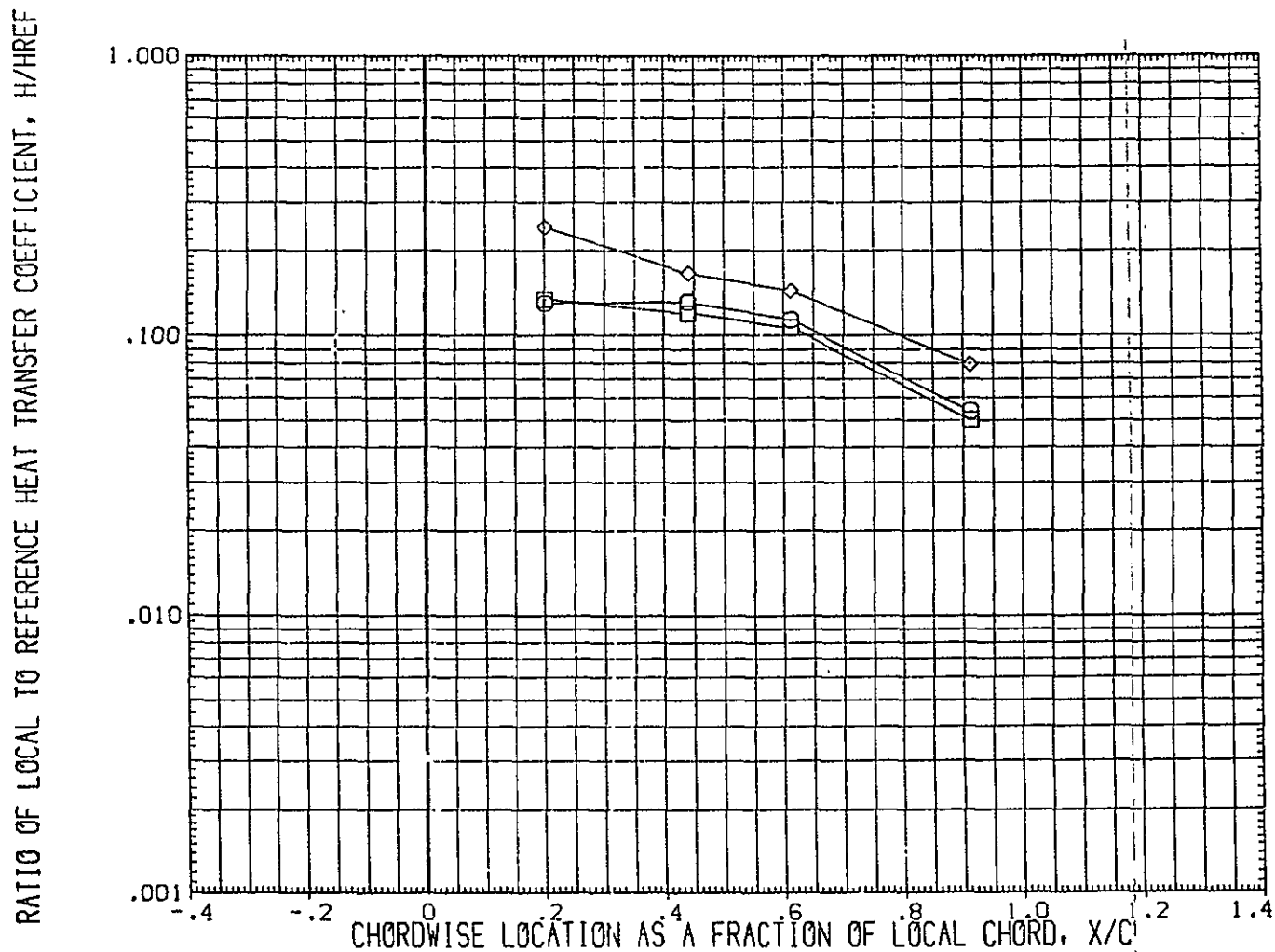


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$

MACH = 12.030 HAW/HT = .900 $2Y/B$ = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

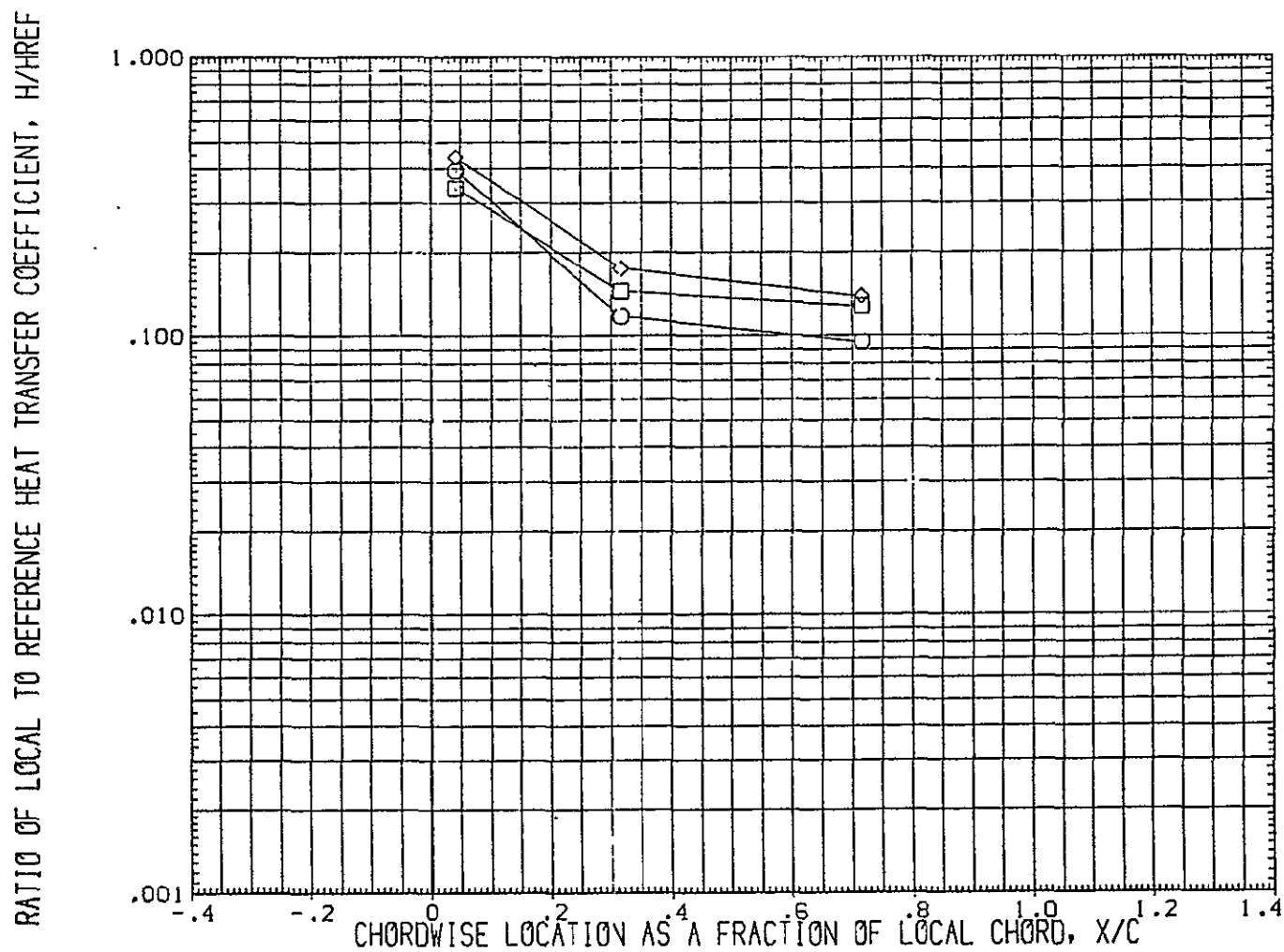


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$

MACH = 12.030 HAW/HT = .900 $2Y/B$ = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	ALPHA	BETA
(RUGV15)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	25.000	.000
(RUGV16)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	30.000	.000
(RUGV17)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	35.000	.000

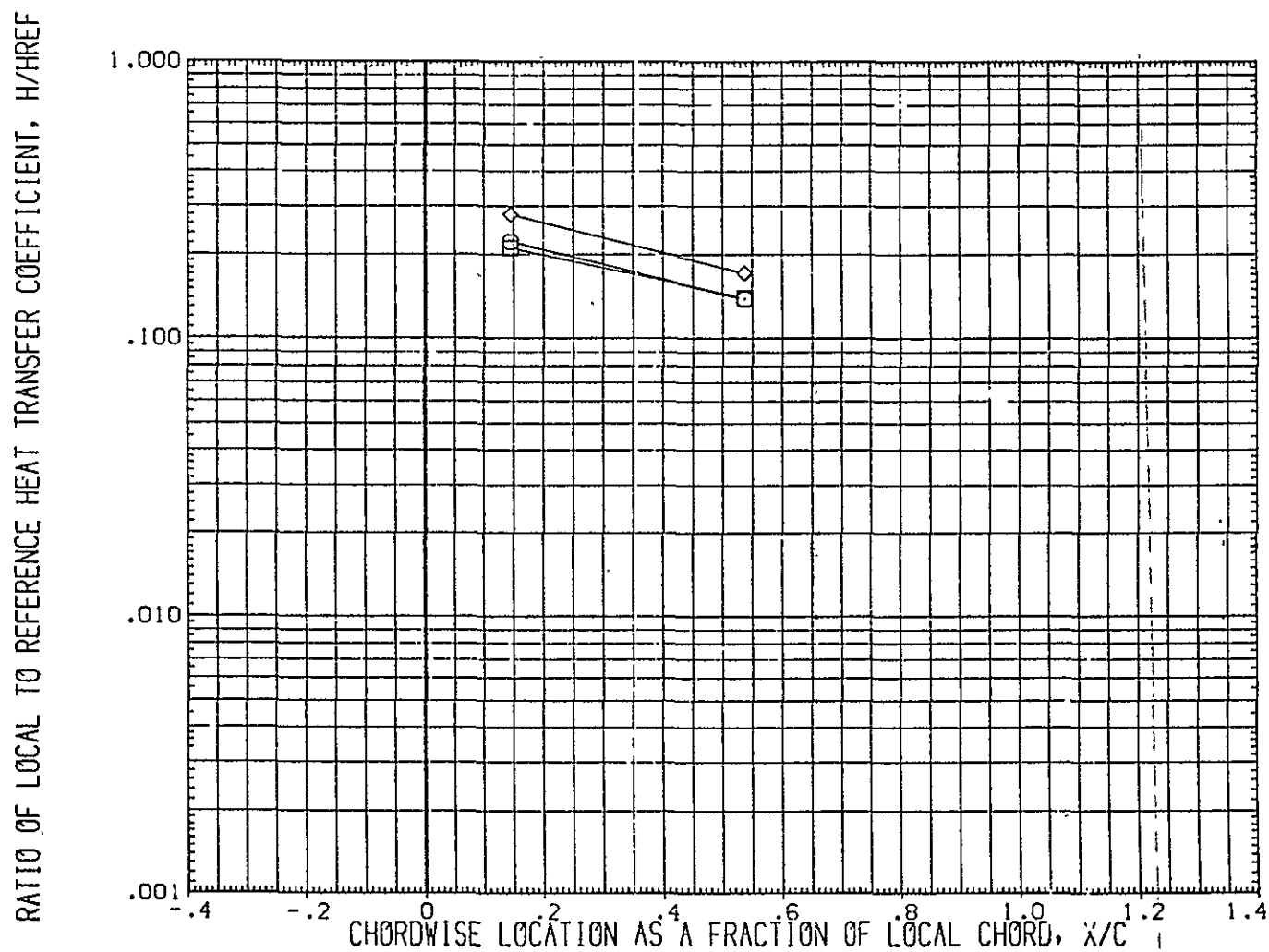


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER (RN/L3)
MACH = 12.030 HAW/HT = .900 2Y/B = .950 PAGE 786

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING I.S.	25.000	.000
(RUGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING I.S.	30.000	.000
(RUGW17)	OH12/1H21 (CAL HST 173-100) 37 0 WING I.S.	35.000	.000

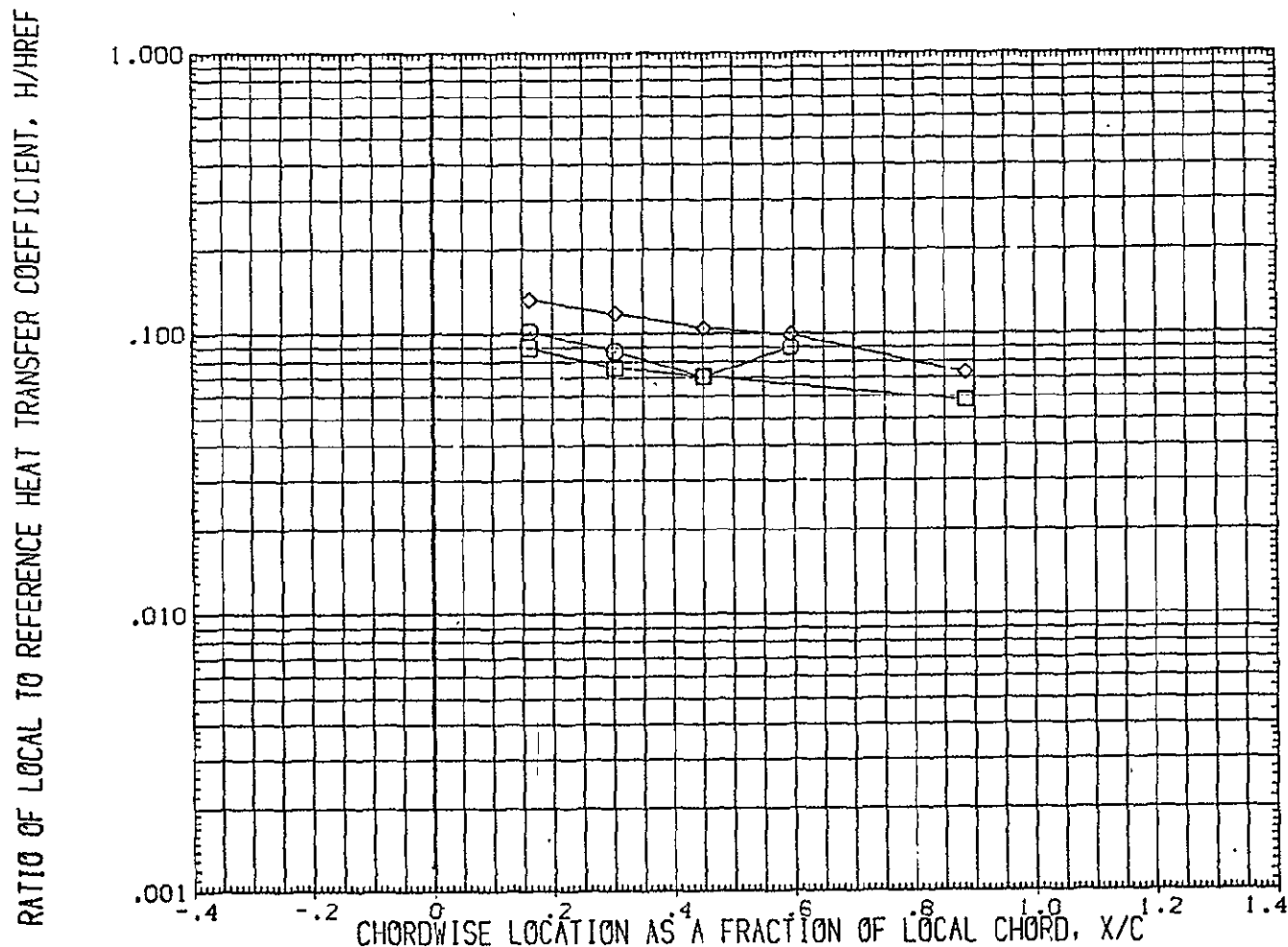


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L3

MACH = 12.030 HAW/HT = 1.000 2Y/B = .250

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	OH12/1421 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

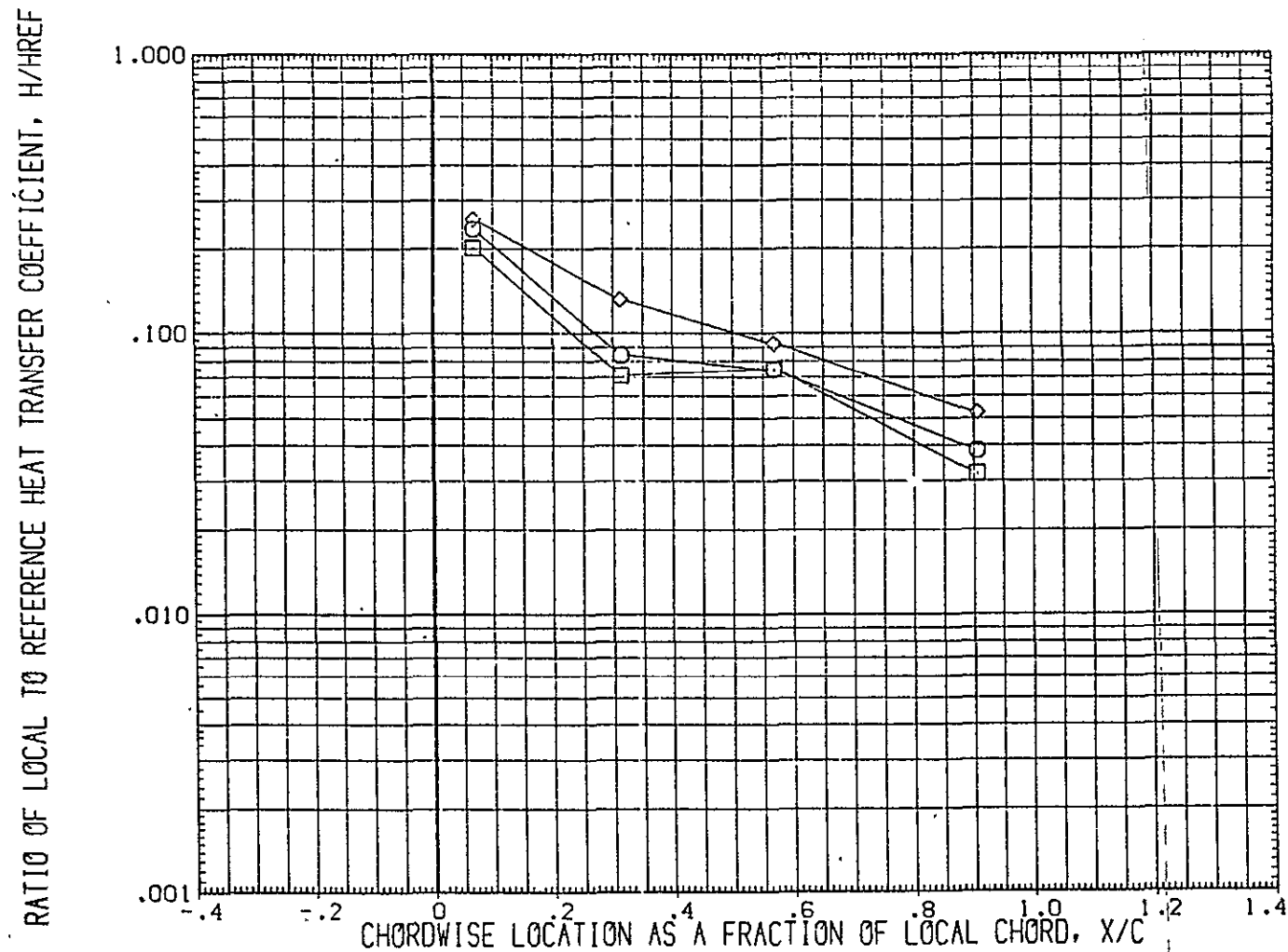


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$
MACH = 12.030 HAW/HT = 1.000 $2Y/B = .400$ PAGE 788

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1H21 (CAL HST 173-100) 37.0 WING L.S.	25.000	.000
(RUGW16)	OH12/1H21 (CAL HST 173-100) 37.0 WING I.S.	30.000	.000
(RUGW17)	OH12/1H21 (CAL HST 173-100) 37.0 WING I.S.	35.000	.000

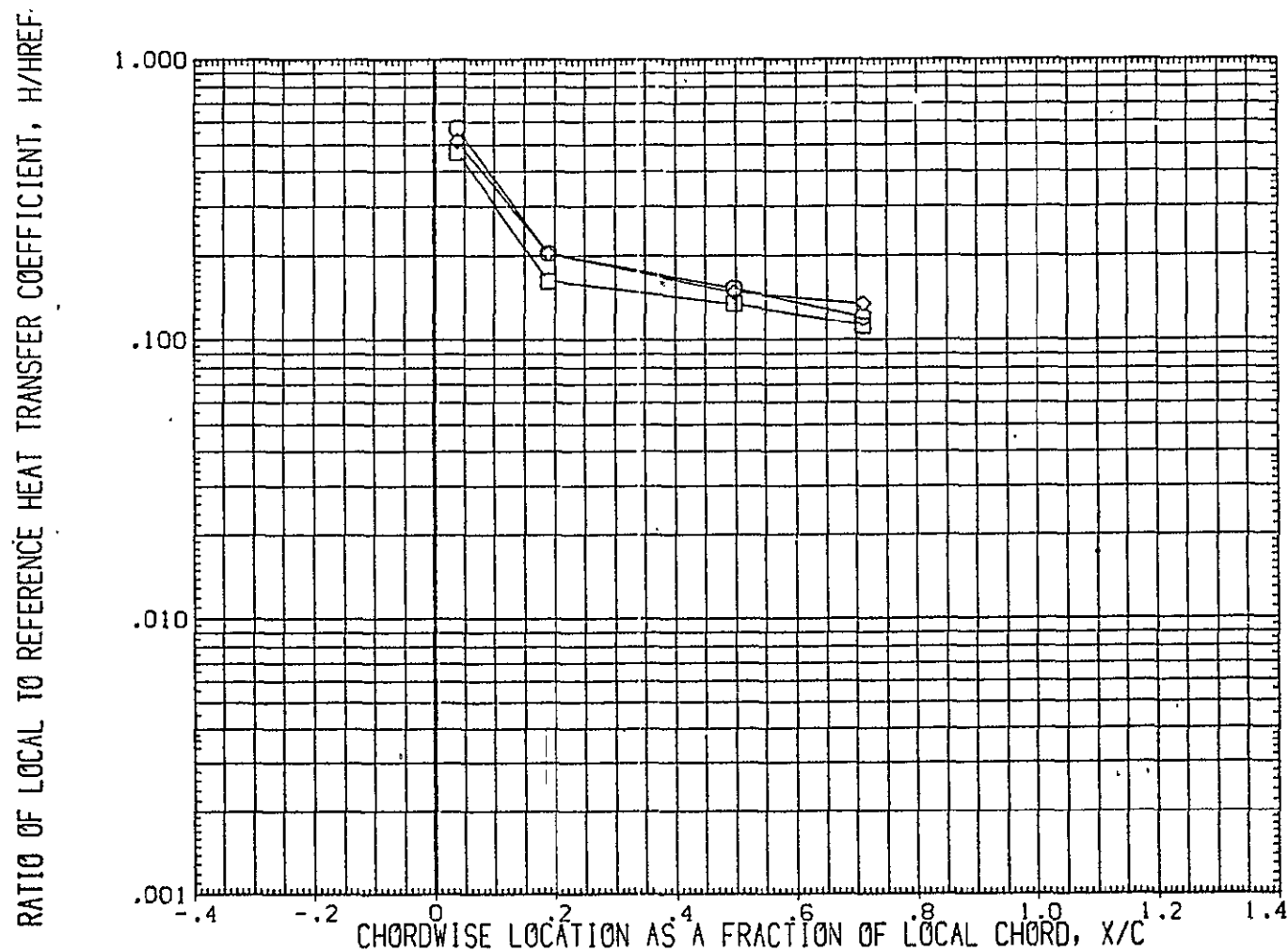


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L3

MACH = 12.030 HAW/HT= 1.000 2Y/B = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

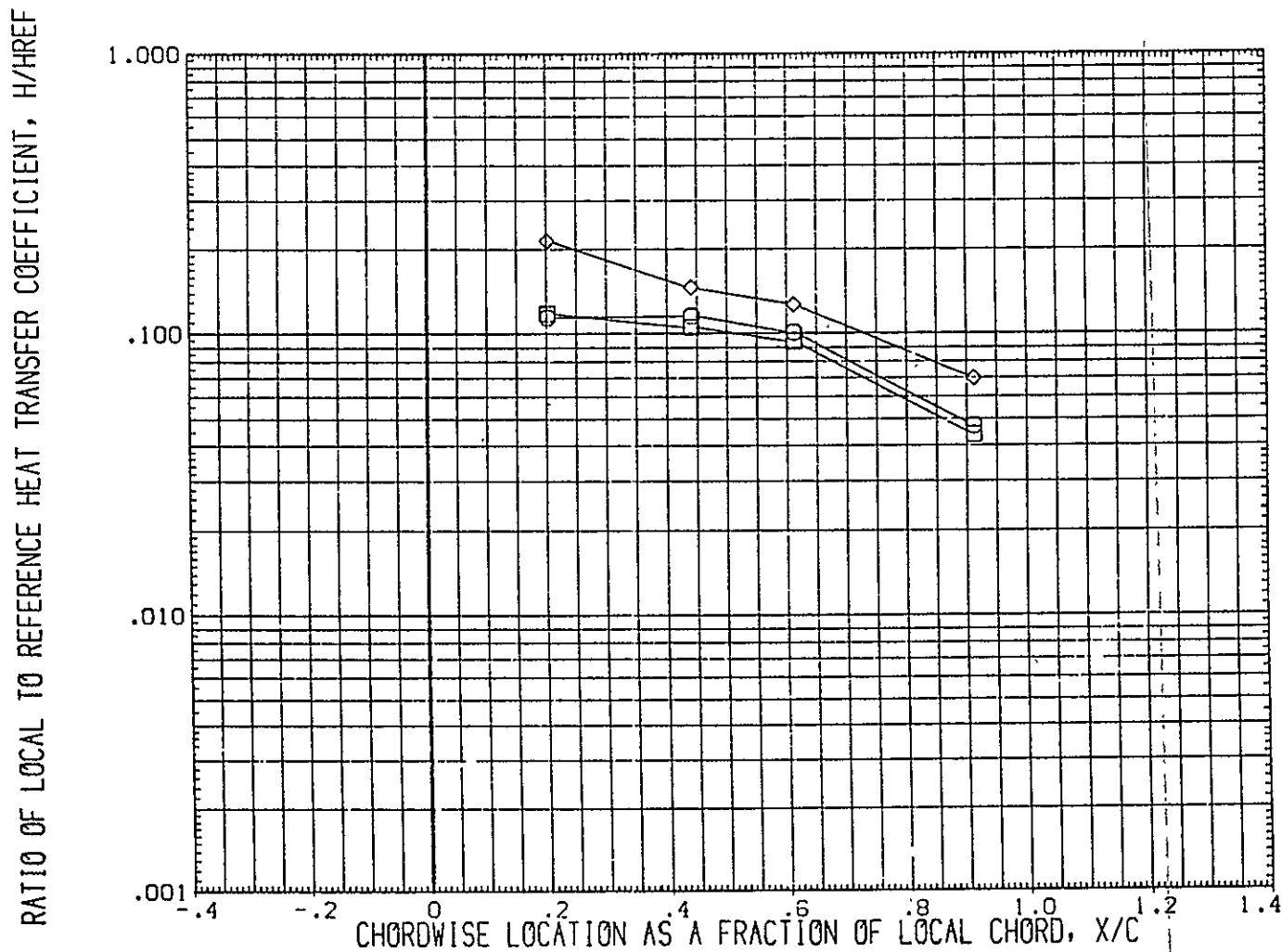


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER |RN/L3

MACH = 12.030 HAW/HT= 1.000 2Y/B = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WING L.S.	ALPHA	BETA
(RUGW15)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	25.000	.000
(RUGW16)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	30.000	.000
(RUGW17)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	35.000	.000

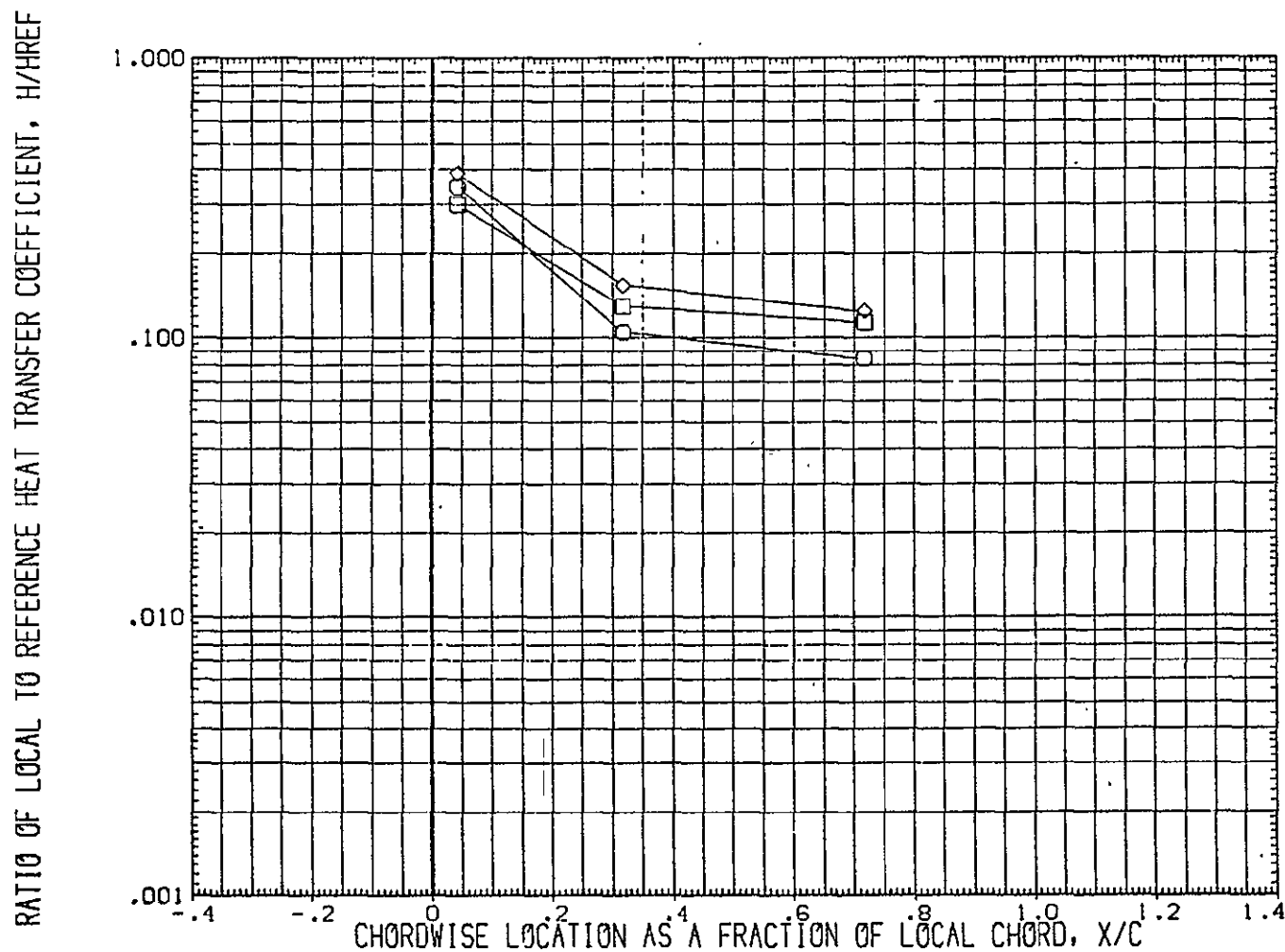


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L^3

MACH = 12.030 HAW/HT = 1.000 $2Y/B = .750$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

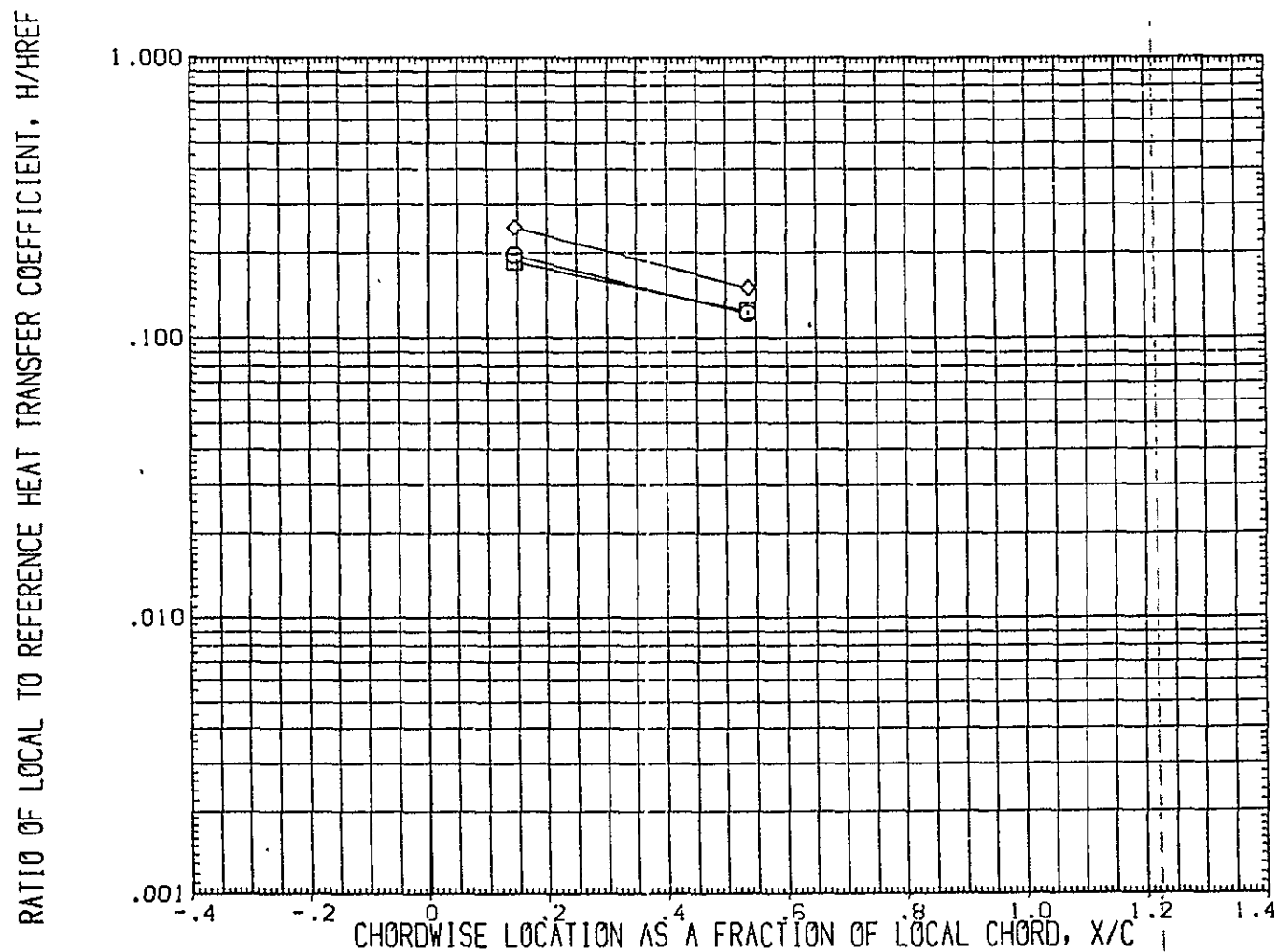


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER | RN/L3
MACH = 12.030 HAW/HT= 1.000 2Y/B = .950 PAGE 792

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	0412/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	0412/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	0412/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

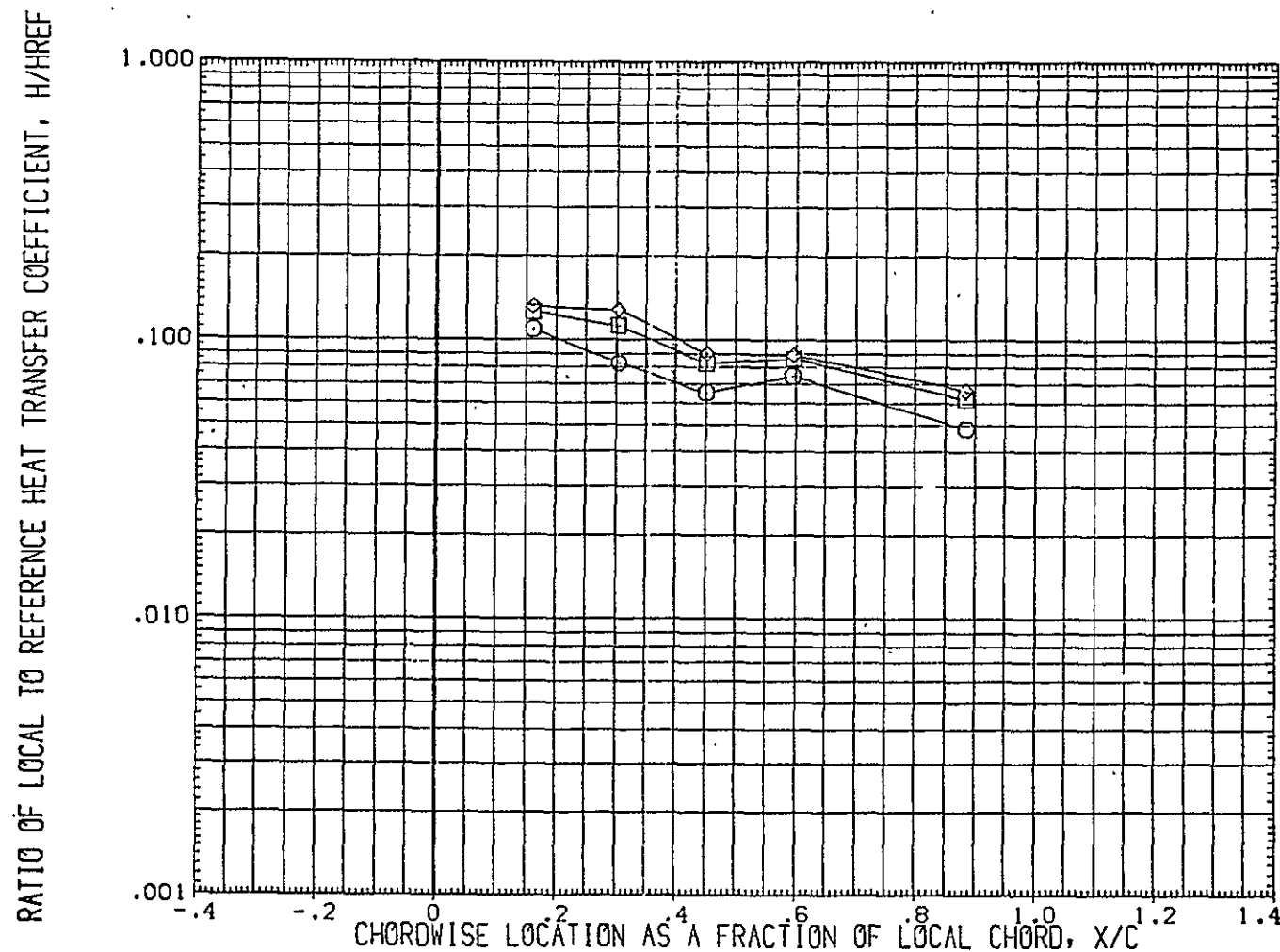


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$
MACH = 15.720 HAW/HT = .850 $2Y/B$ = .250

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

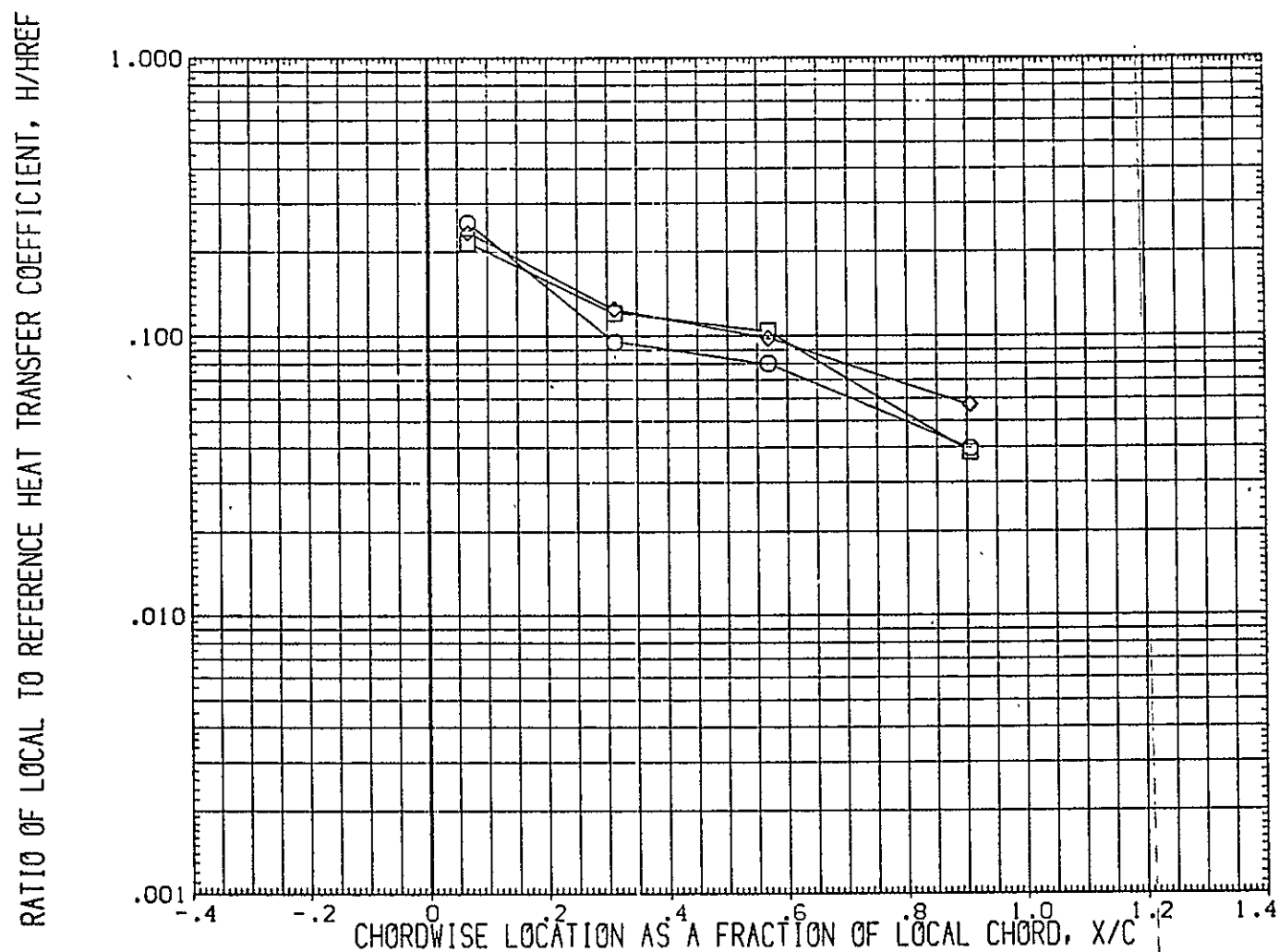


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$

MACH = 15.720 HAW/HT = .850 2Y/B = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV15)	OH12/1H21 [CAL HST 173-100] 37 0 WING L.S.	25.000	.000
(RUGV16)	OH12/1H21 [CAL HST 173-100] 37 0 WING L.S.	30.000	.000
(RUGV17)	OH12/1H21 [CAL HST 173-100] 37 0 WING L.S.	35.000	.000

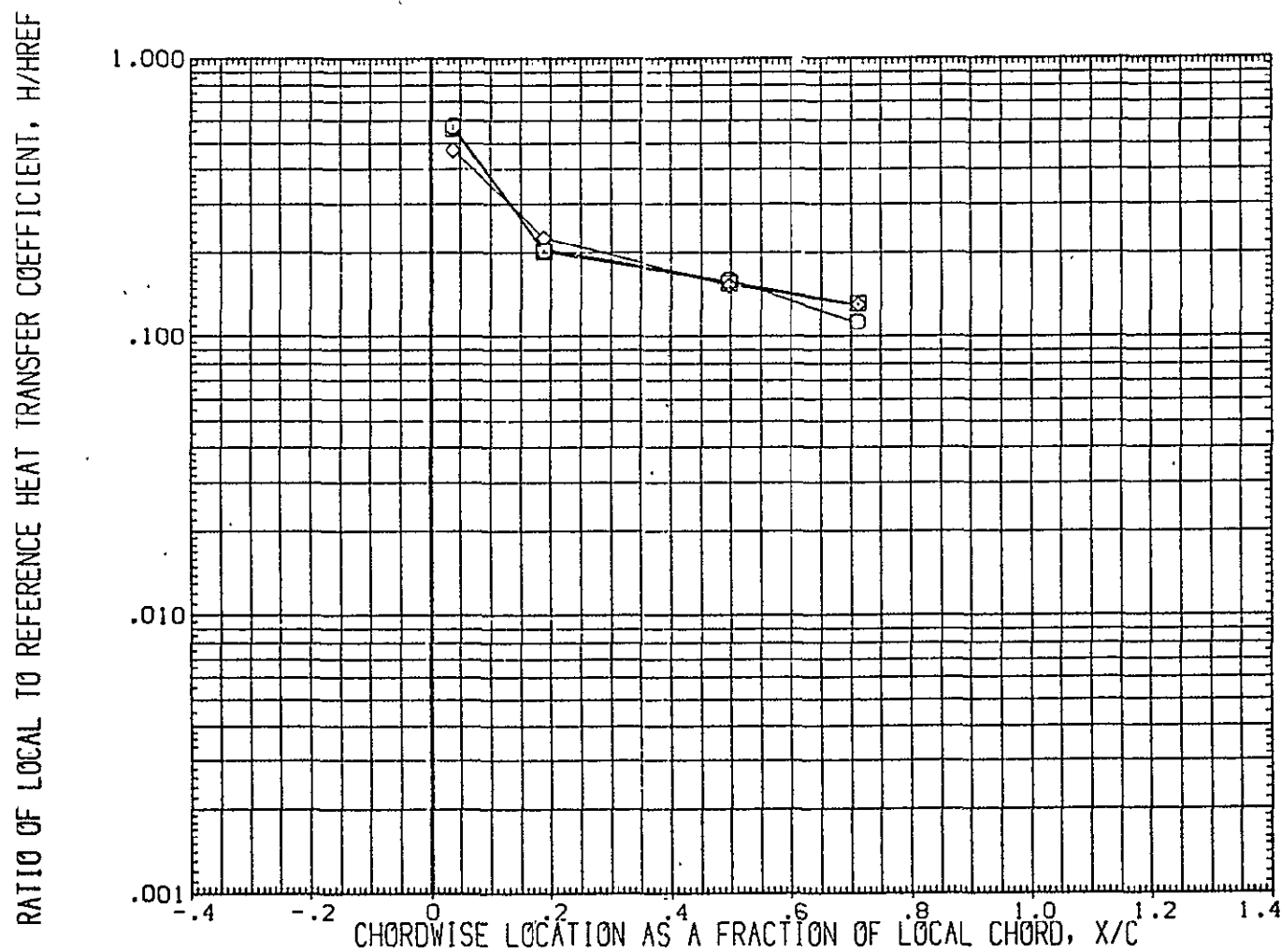


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$

MACH = 15.720 $HAW/HT = .850$ $2Y/B = .500$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

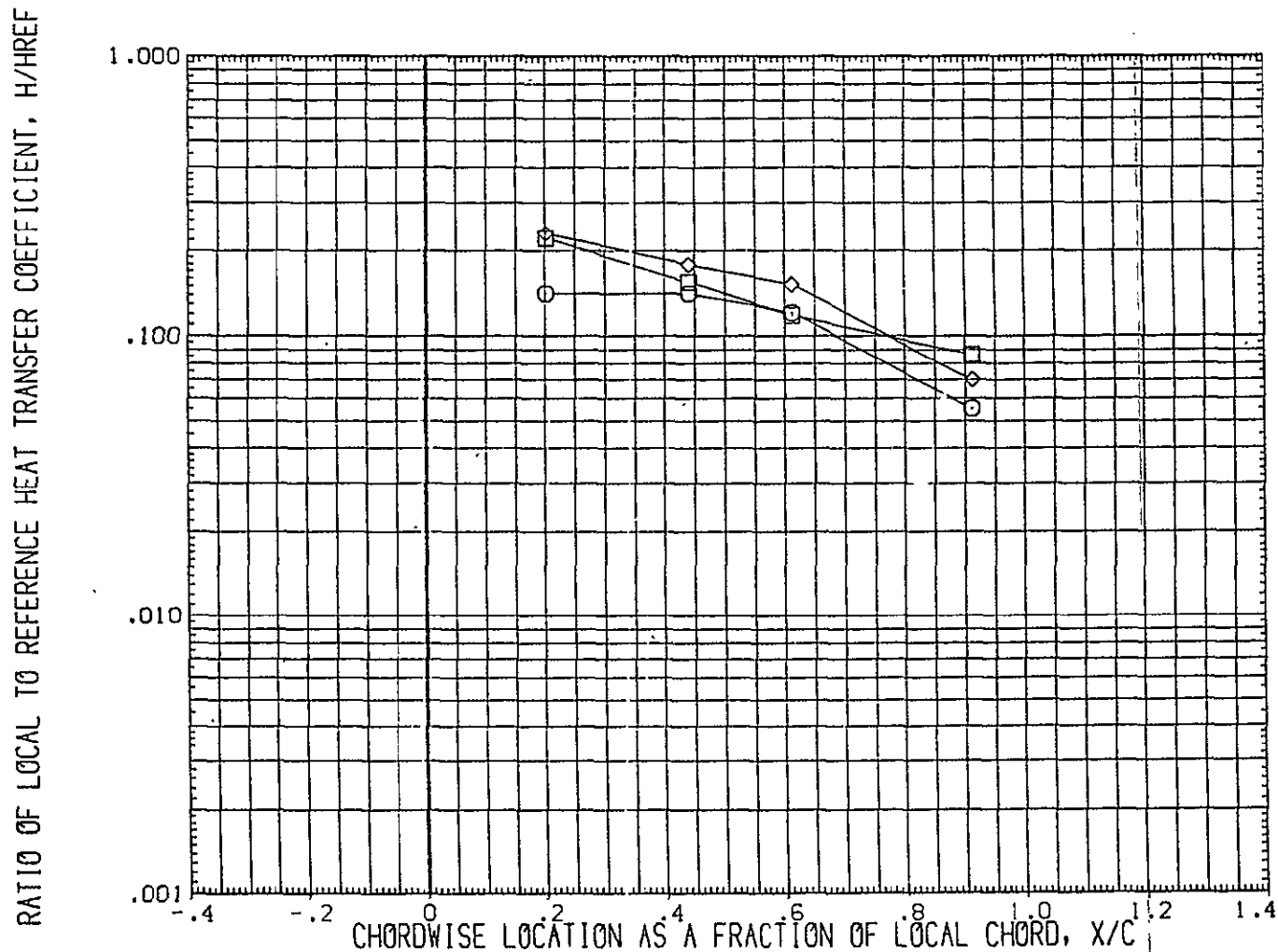


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER | RN/L3
MACH = 15.720 HAW/HT = .850 2Y/B = .600 PAGE 796

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	WING L.S.	ALPHA	BETA
RUGW15	□	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000	
RUGW16	◇	OH12/1H21 (CAL HST 173-100) 37 0	30.000	.000	
RUGW17	◇	OH12/1H21 (CAL HST 173-100) 37 0	35.000	.000	

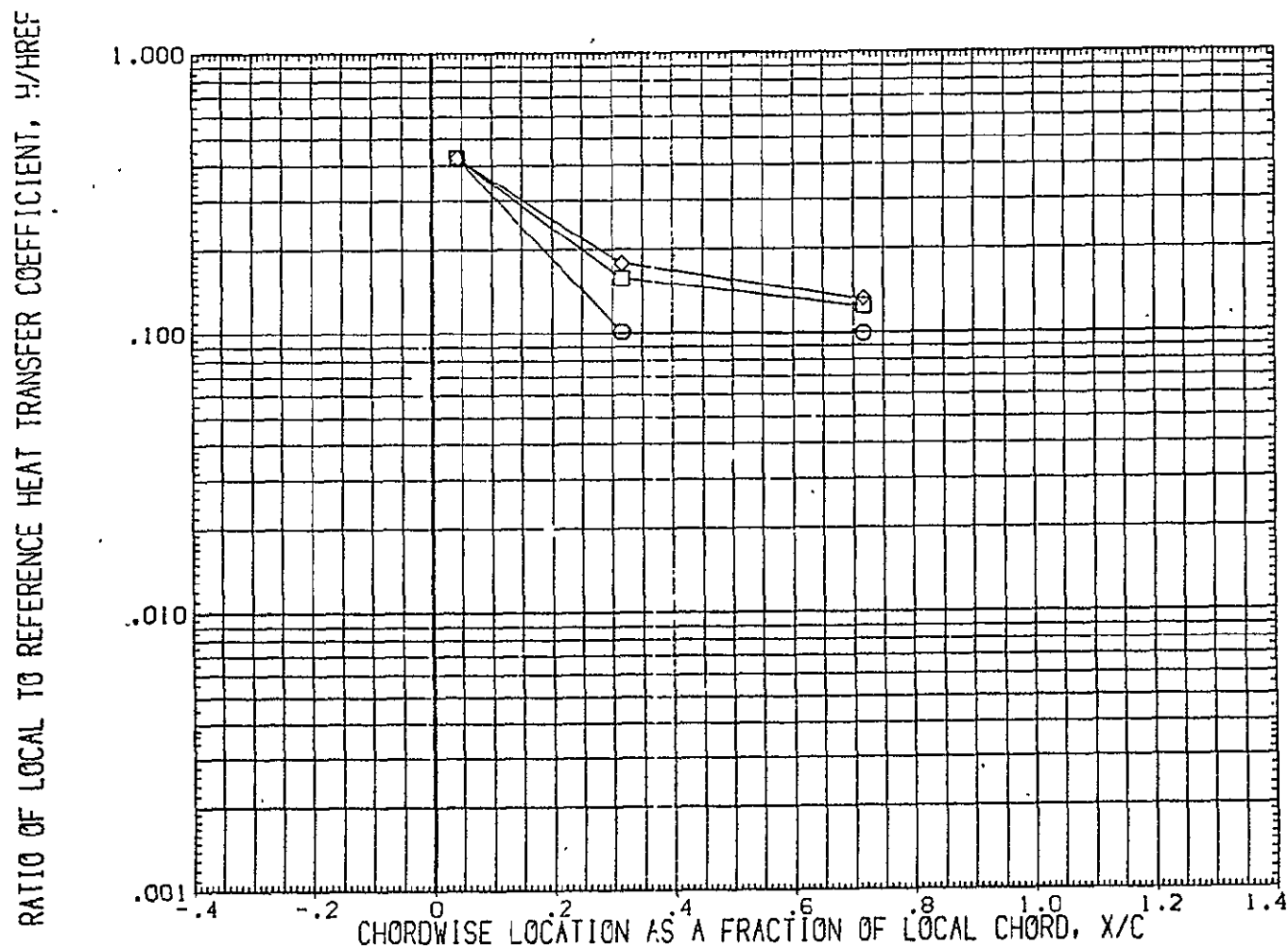


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$
MACH = 15.720 HAW/HT = .850 $2Y/B$ = .750 PAGE 797

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV15)	OH12/1H21 (CAL HST 173-100) 37 G WING L.S.	25.000	.000
(RUGV16)	OH12/1H21 (CAL HST 173-100) 37 G WING L.S.	30.000	.000
(RUGV17)	OH12/1H21 (CAL HST 173-100) 37 G WING L.S.	35.000	.000

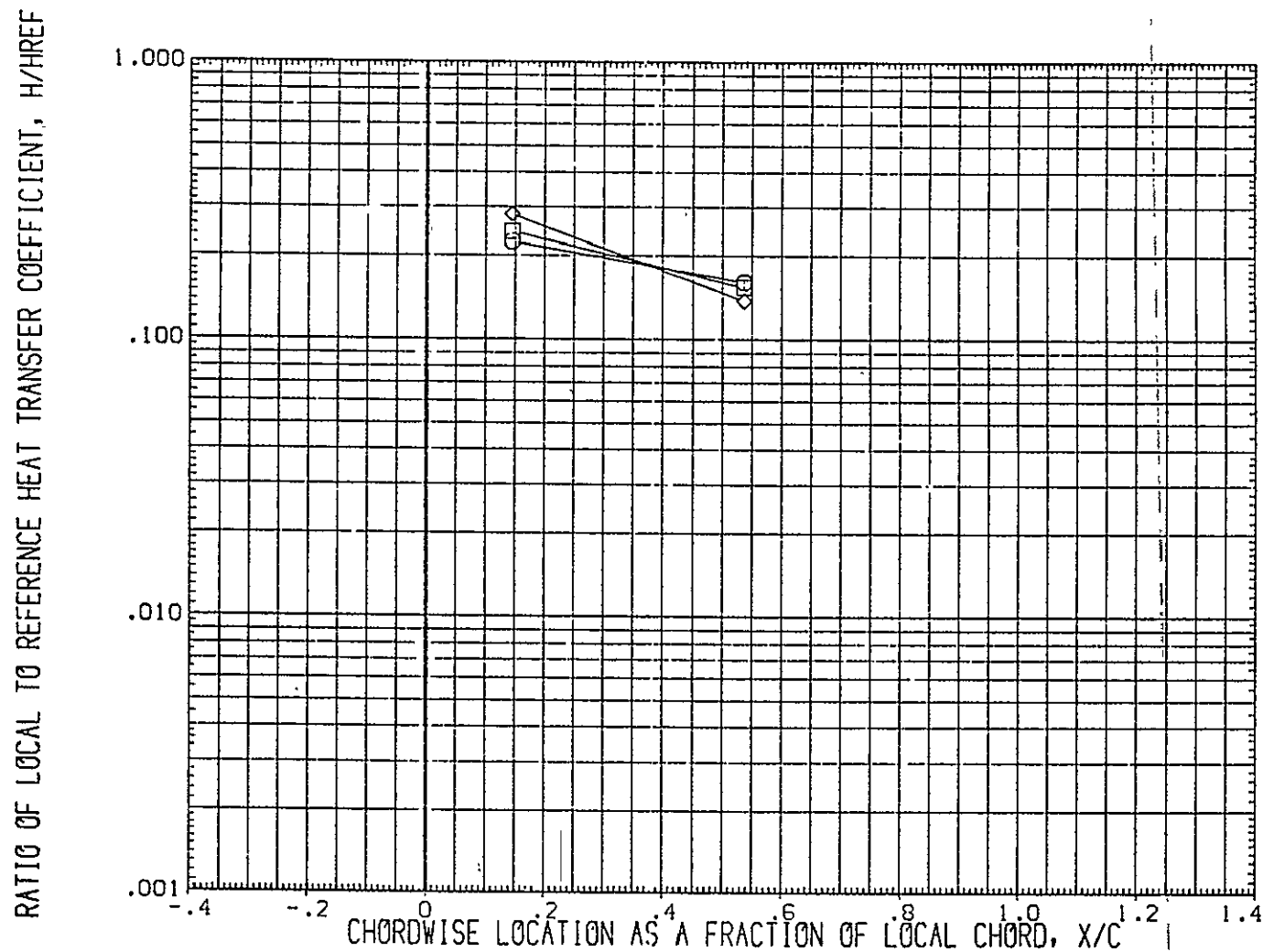


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$
MACH = 15.720 HAW/HT = .850 $2Y/B$ = .950

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OW12/1W21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	OW12/1W21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	OW12/1W21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

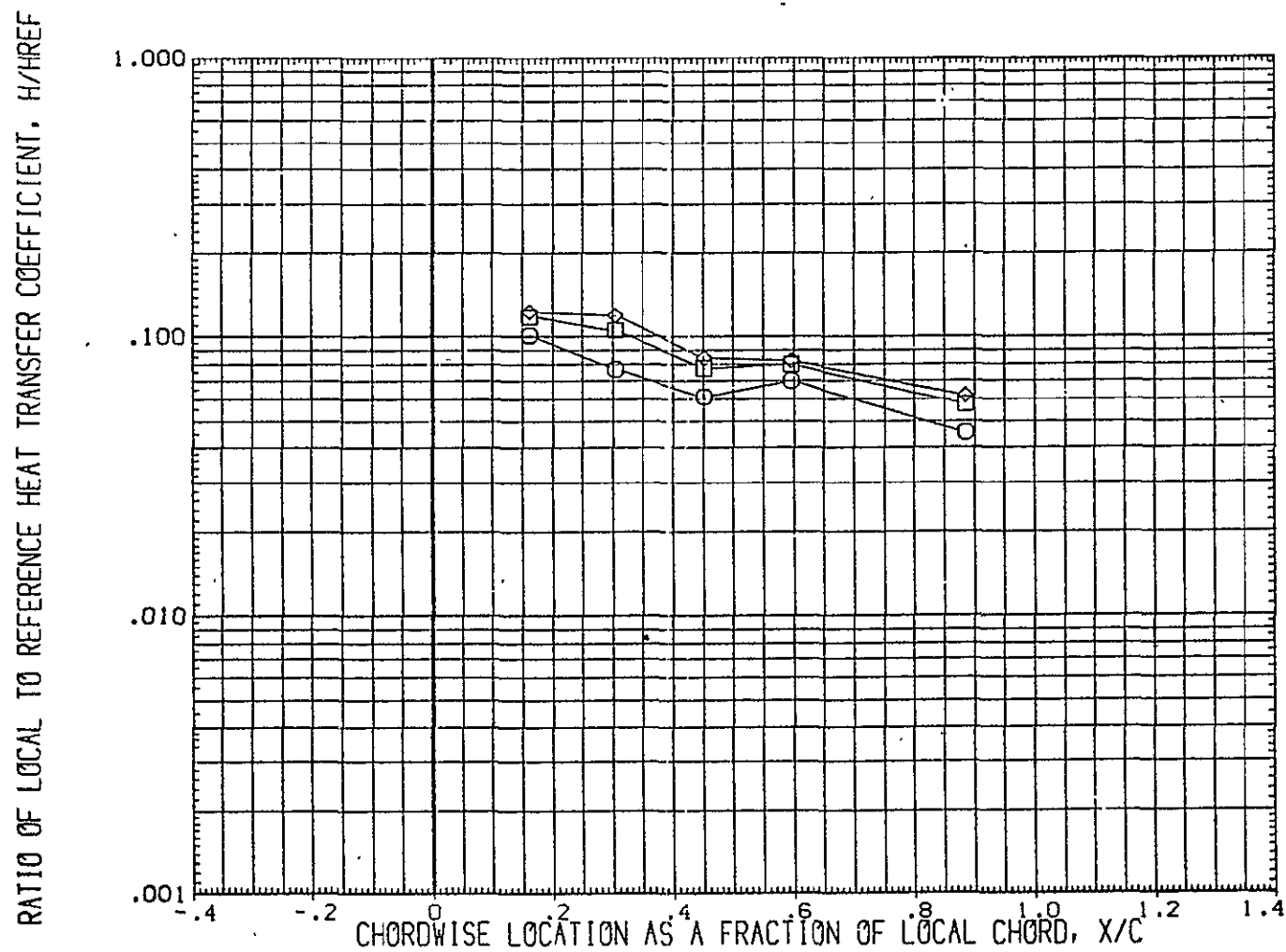


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L3
MACH = 15.720 HAW/HT = .900 2Y/B = .250 PAGE 799

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.050
(RUGW17)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.030

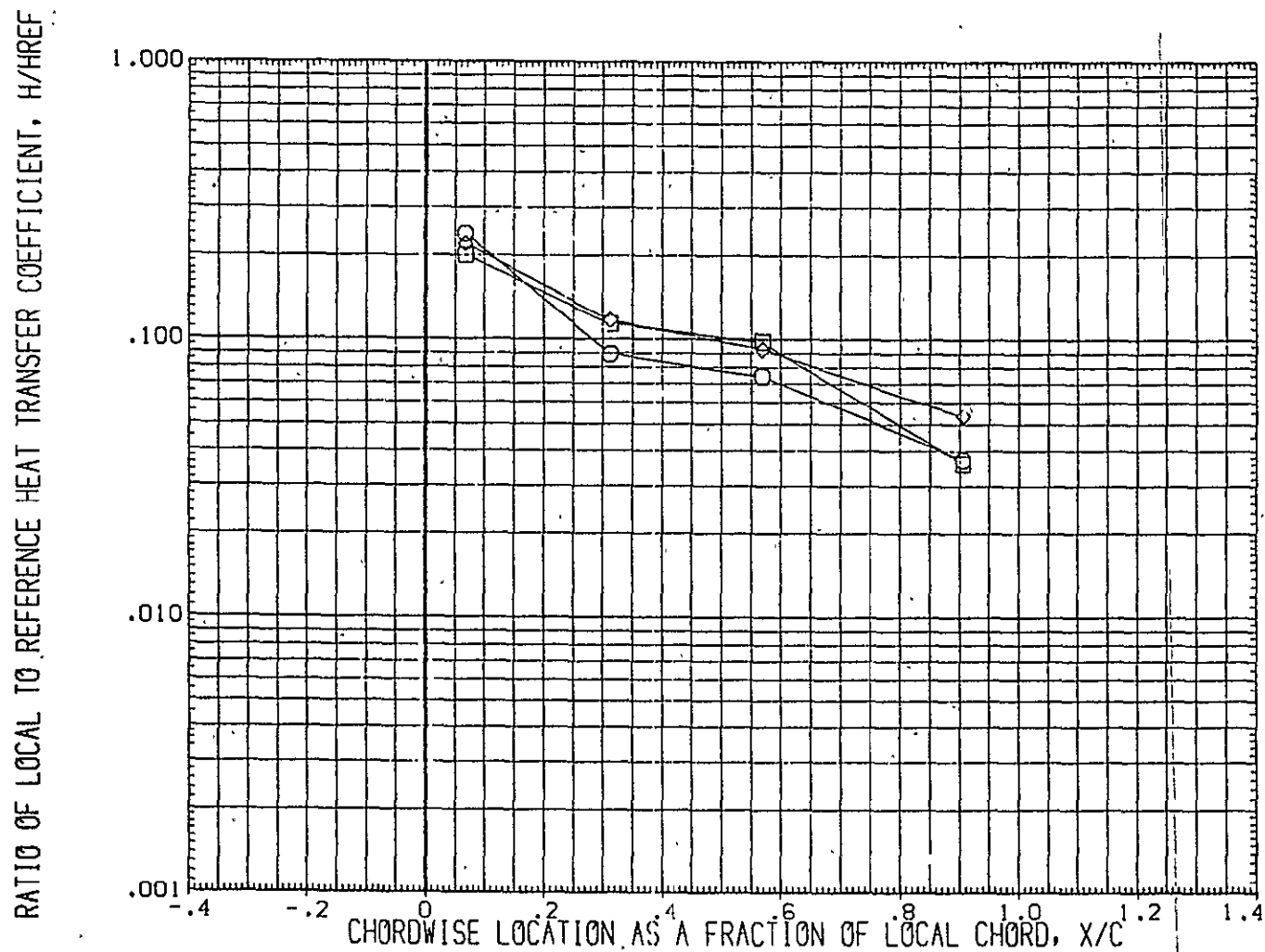


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$
MACH = 15.720 HAW/HT = .900 $2Y/B = .400$ PAGE 800

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

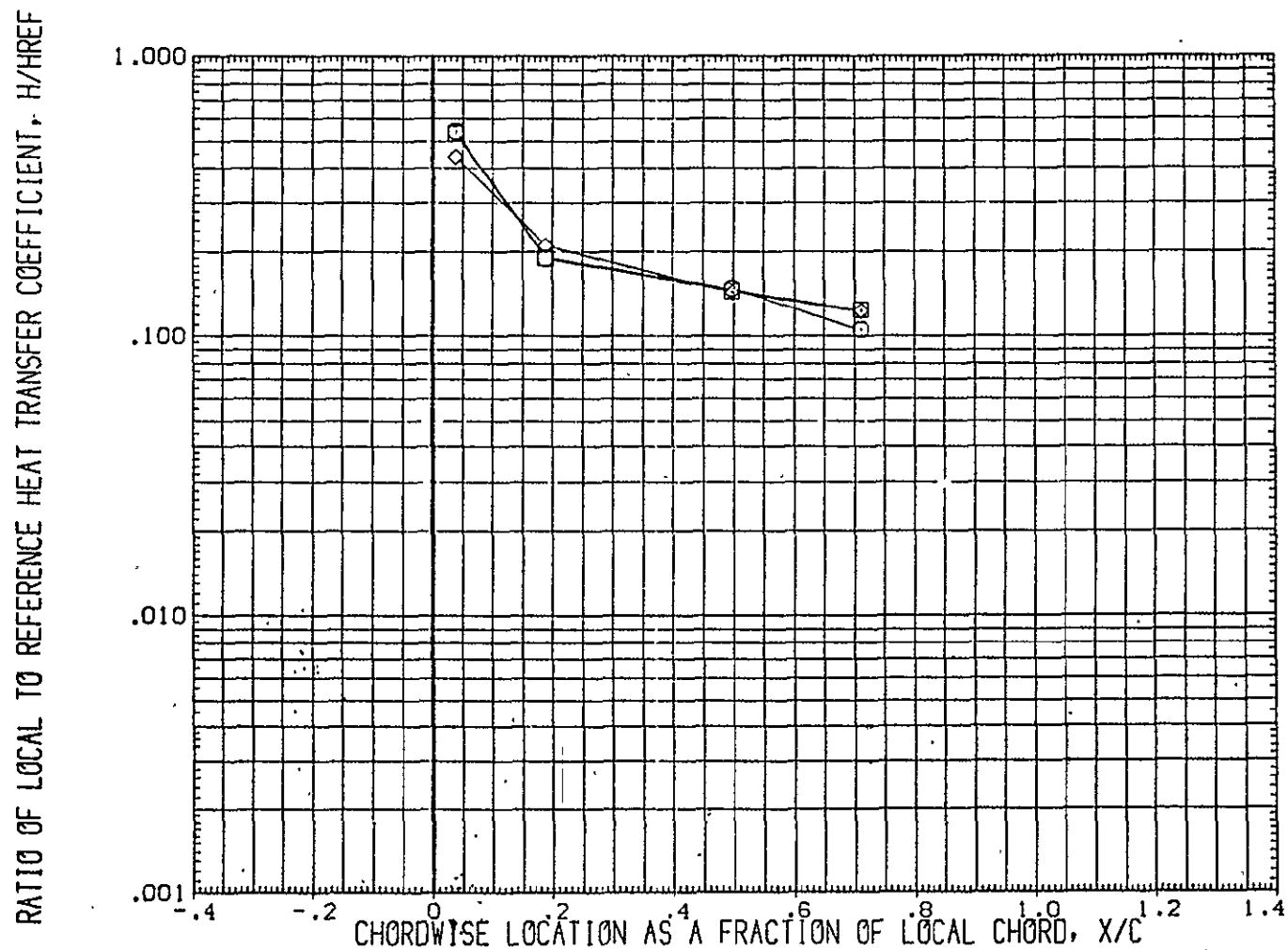


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$

MACH = 15.720 $h_{AW}/h_T = .900$ $2Y/B = .500$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	0412/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	0412/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	0412/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

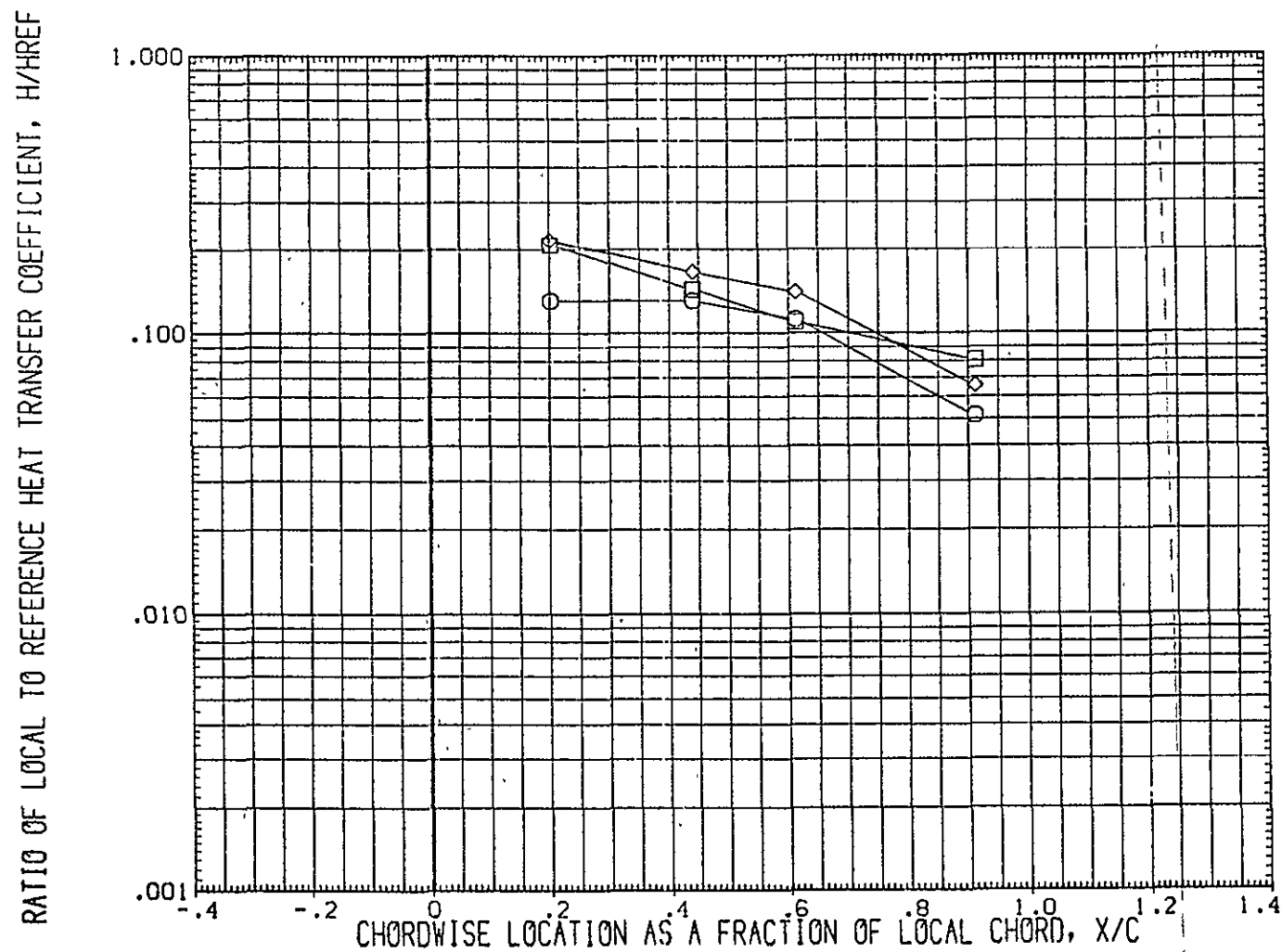


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$
MACH = 15.720 HAW/HT = .900 $2Y/B = .600$ PAGE 802

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
{RUGW15}	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
{RUGW16}	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
{RUGW17}	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

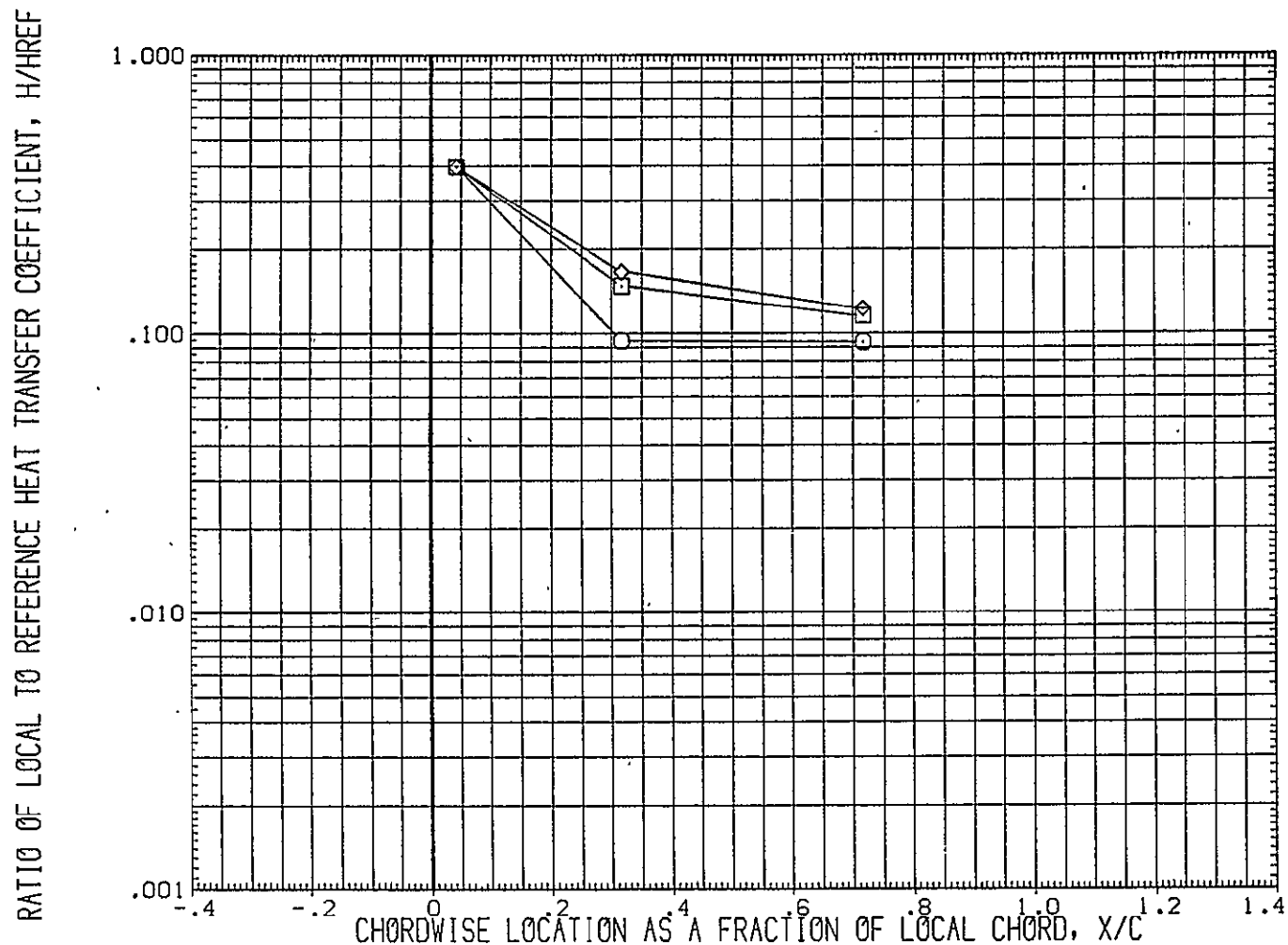


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$

MACH = 15.720 HAW/HT= .900 $2Y/B = .750$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

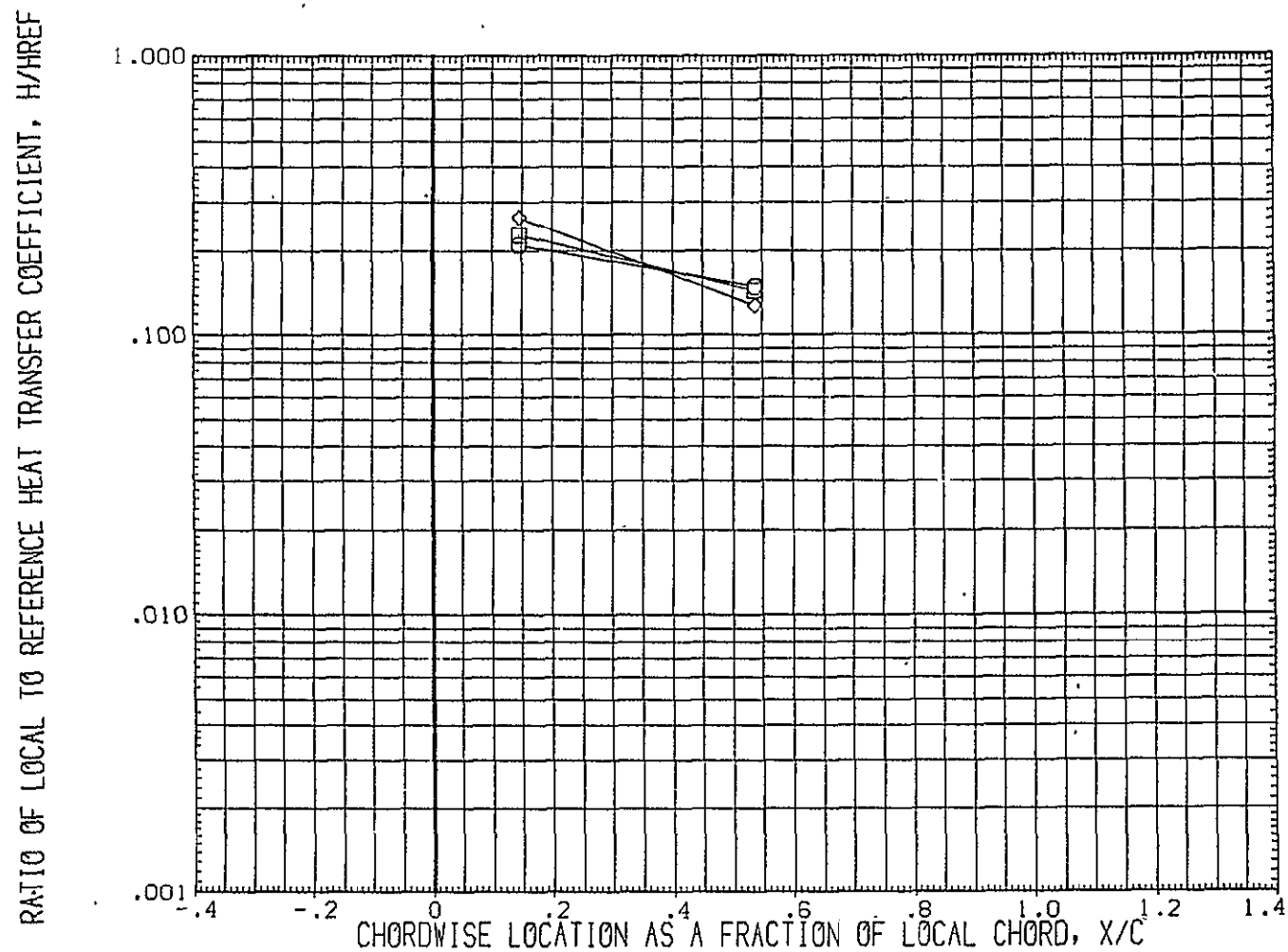


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$

MACH = 15.720 HAW/HT = .900 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

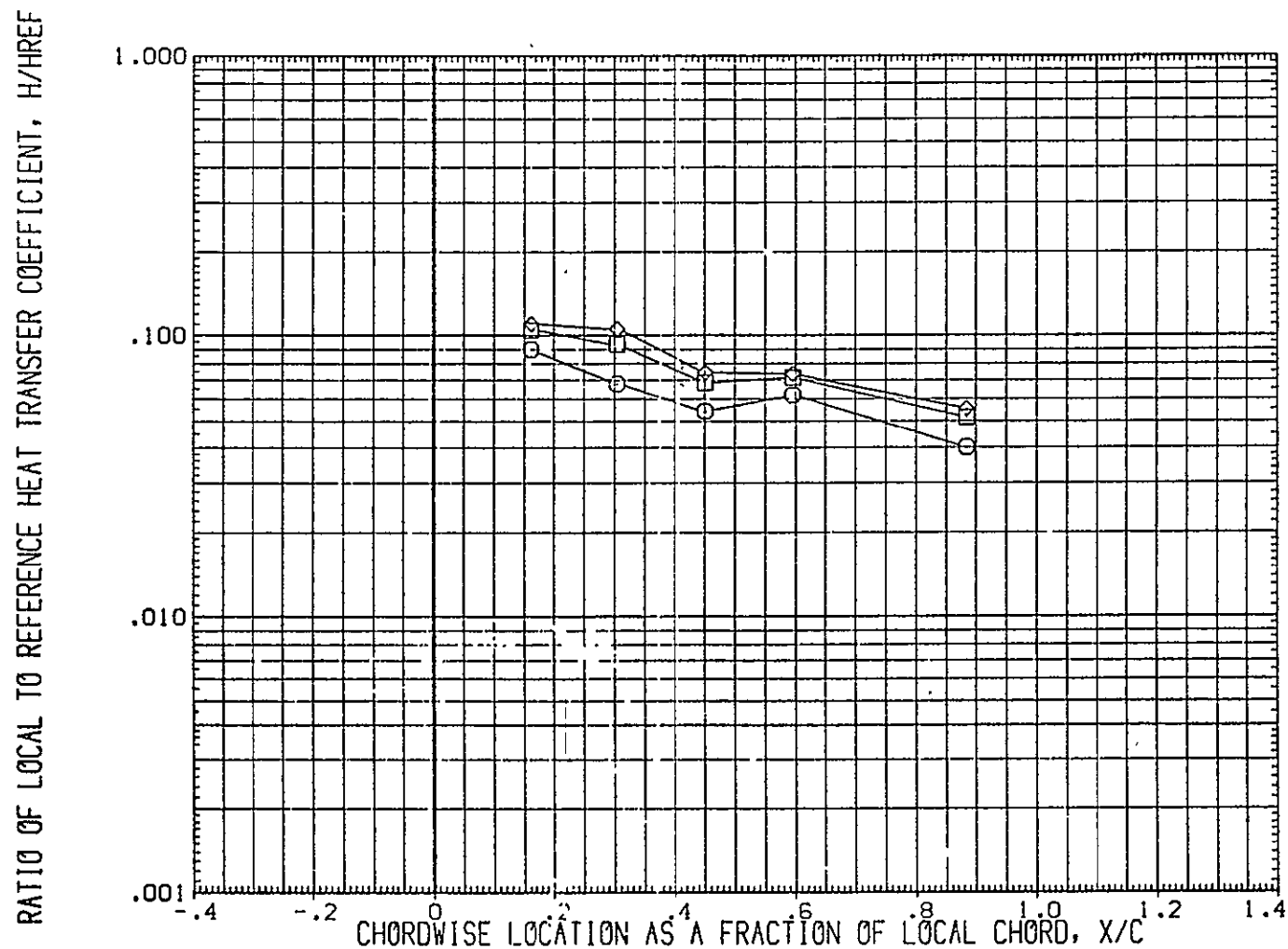


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$
MACH = 15.720 HAW/HT= 1.000 $2Y/B = .250$ PAGE 805

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

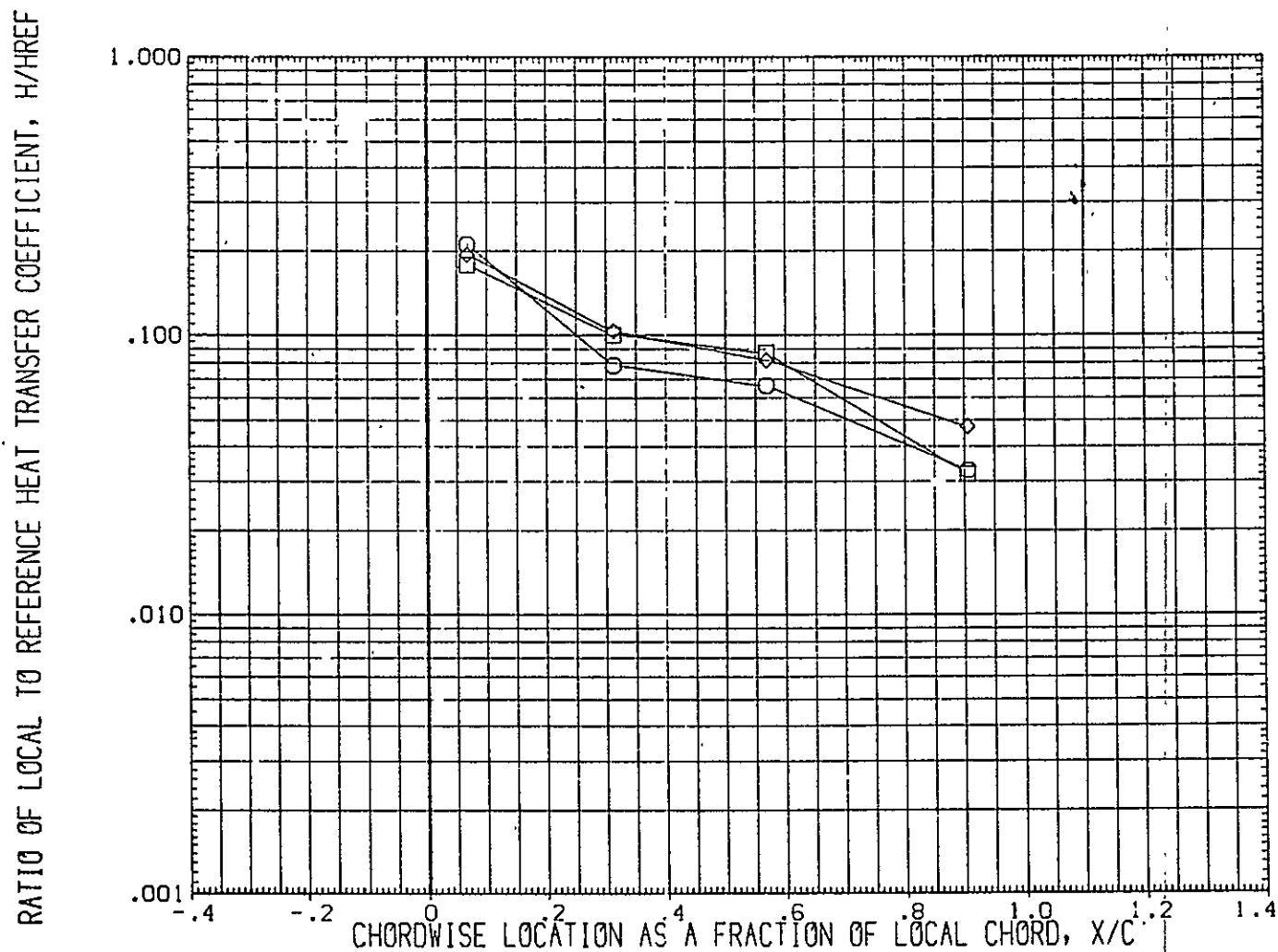


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L3

MACH = 15.720 HAW/HT= 1.000 2Y/B = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV15)	OH12/IH21 (CAL HST 173-100) 37 O WING L.S.	25.000	.000
(RUGV16)	OH12/IH21 (CAL HST 173-100) 37 O WING L.S.	30.000	.000
(RUGV17)	OH12/IH21 (CAL HST 173-100) 37 O WING L.S.	35.000	.000

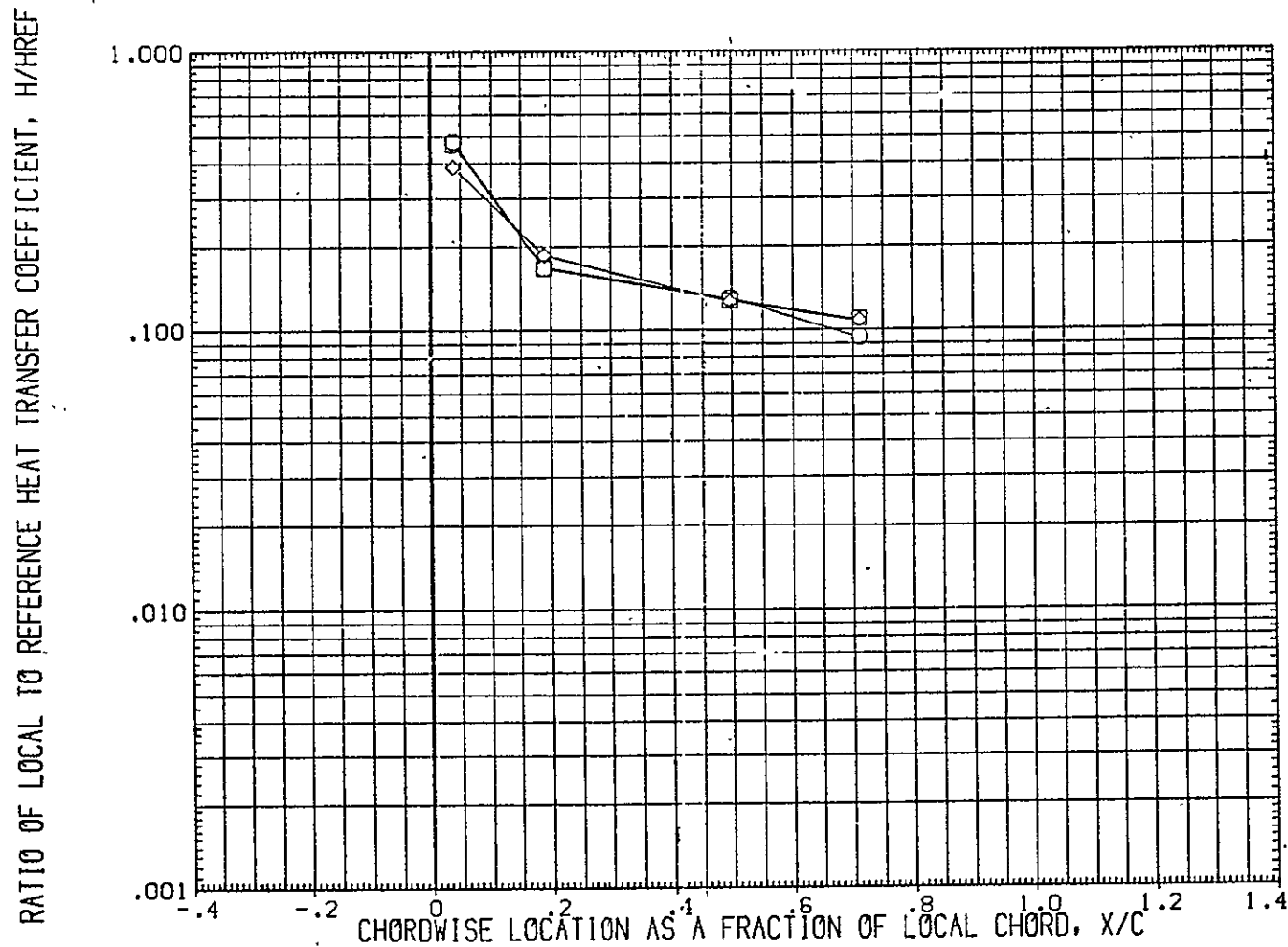


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$
MACH = 15.720 HAW/HT = 1.000 2Y/B = .500 PAGE 807

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	0412/1421 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	0412/1421 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	0412/1421 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

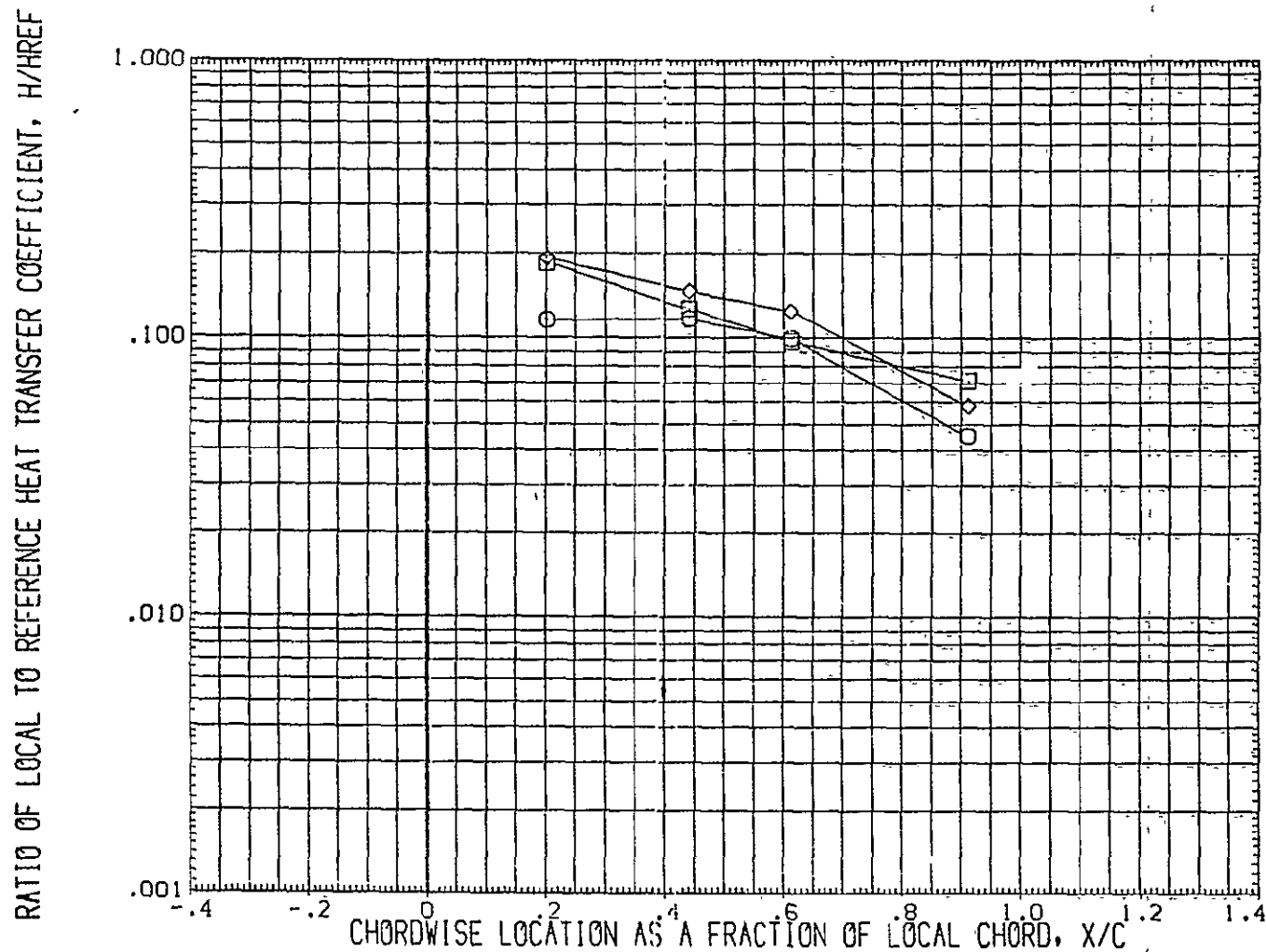


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$
MACH = 15.720 HAW/HT= 1.000 2Y/B = .600 PAGE 808

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1H21 (CAL HST (73-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	OH12/1H21 (CAL HST (73-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	OH12/1H21 (CAL HST (73-100) 37 0 WING L.S.	35.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

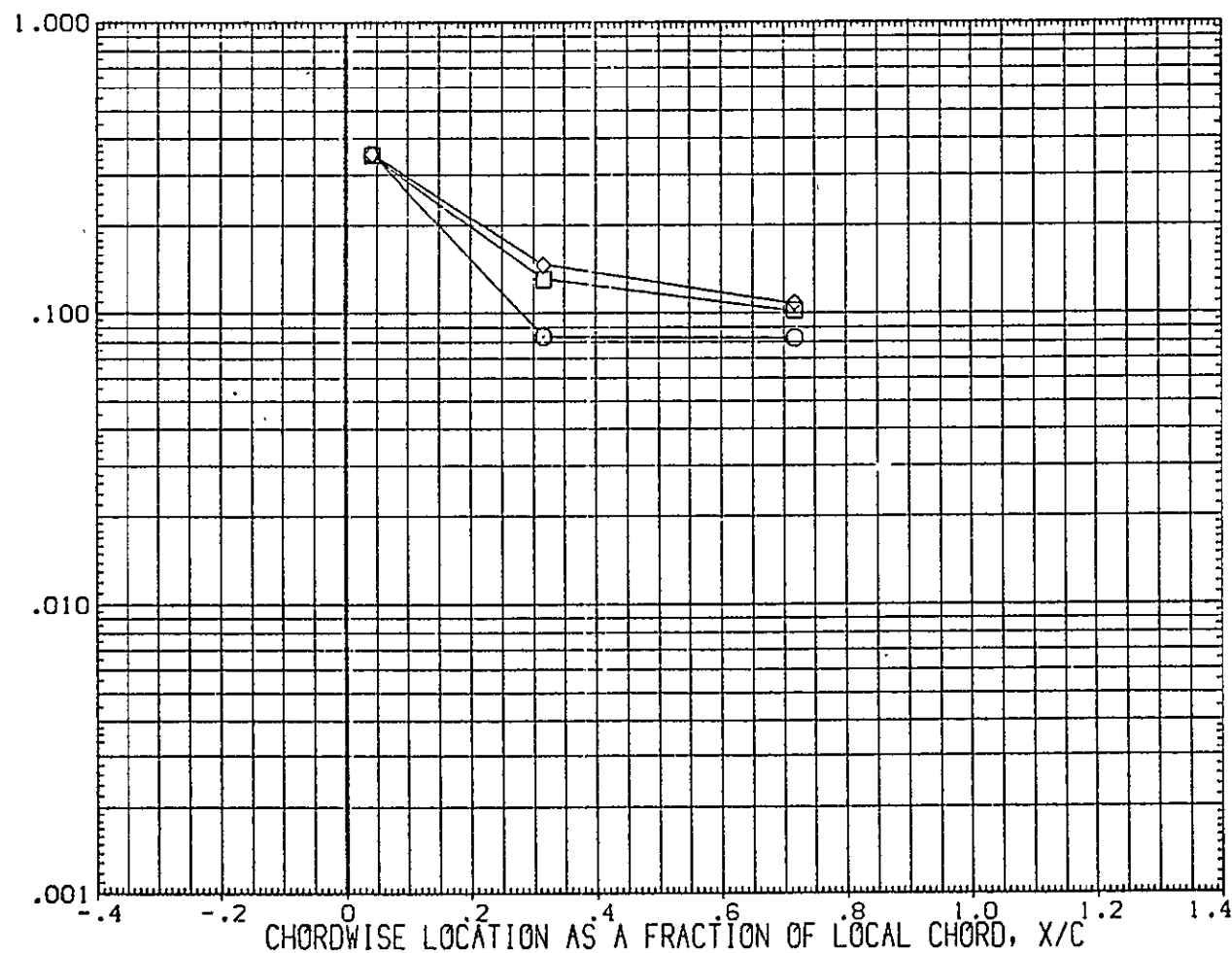


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER $RN/L3$

MACH = 15.720 HAW/HT = 1.000 $2Y/B$ = .750

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	25.000	.000
(RUGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	30.000	.000
(RUGW17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	35.000	.000

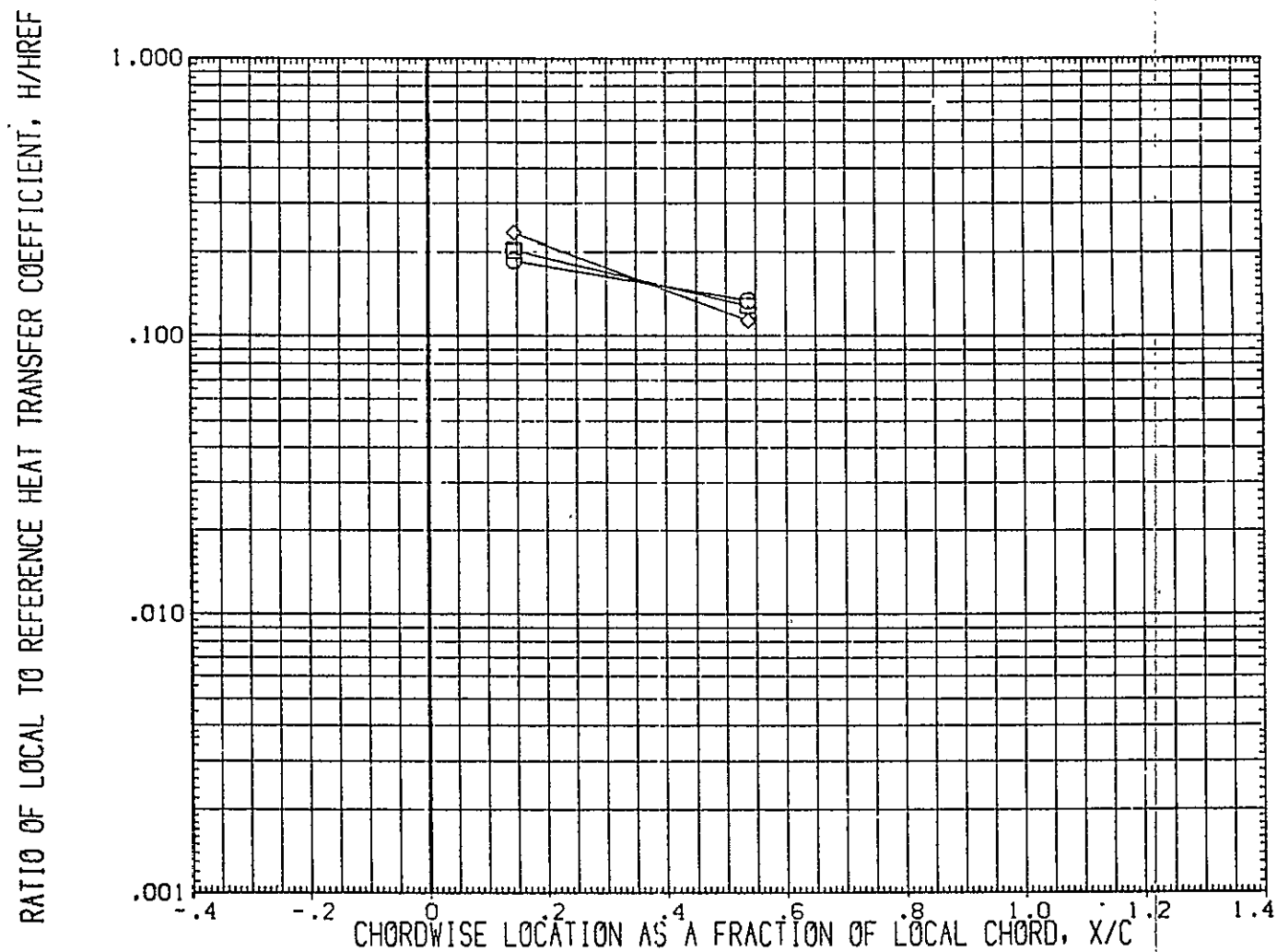


FIG. 25 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER WING HEAT TRANSFER RN/L3
MACH = 15.720 HAW/HT= 1.000 2Y/B = .950 PAGE 810

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV15)	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000
(RUGV16)	OH12/1H21 (CAL HST 173-100) 37 0	30.000	.000
(RUGV17)	OH12/1H21 (CAL HST 173-100) 37 0	35.000	.000

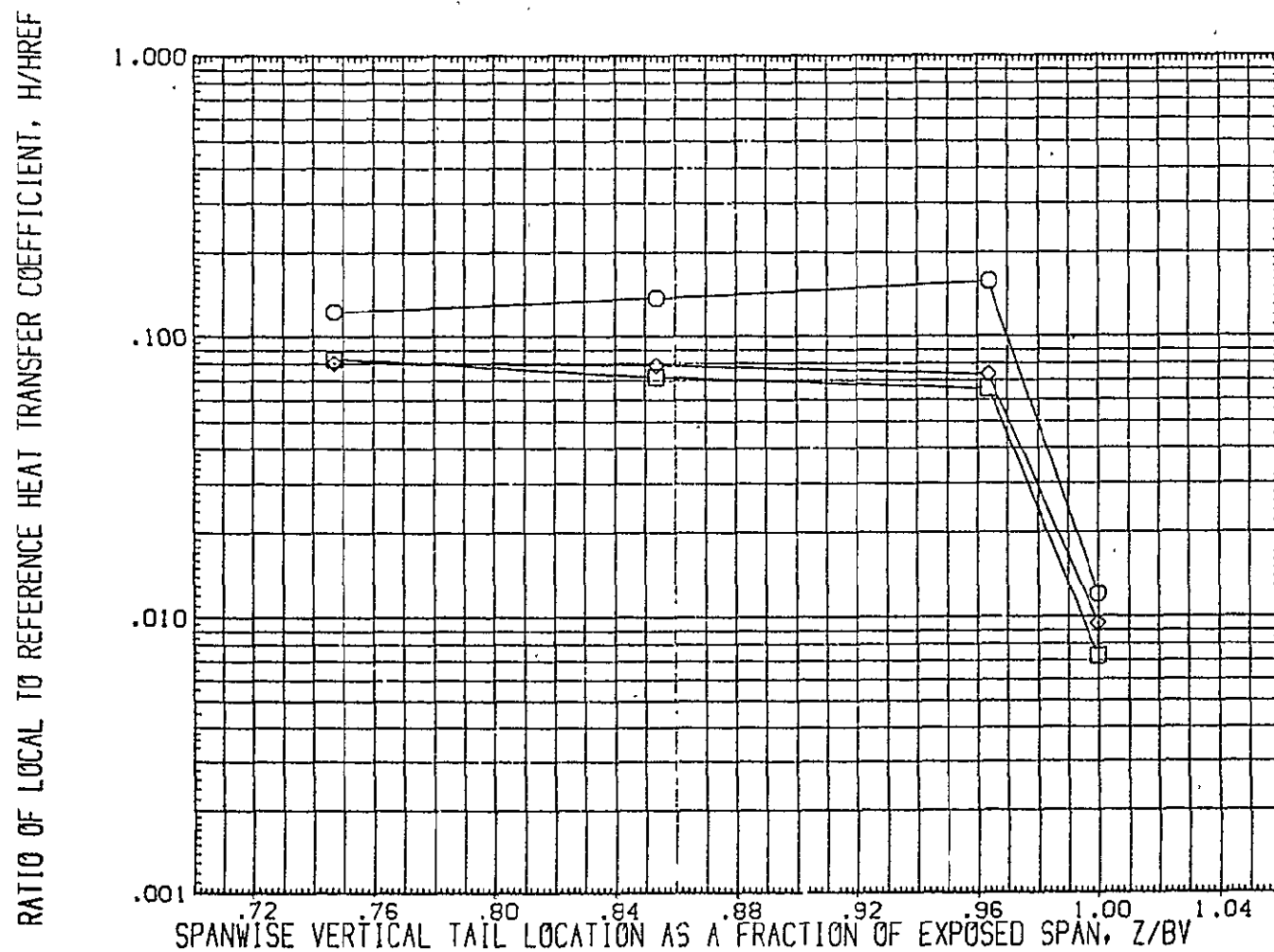


FIG. 26 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L3$

MACH = 12.030 HAW/HT = .850 GAGENO = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV15)	0412/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV16)	0412/1H21 (CAL HST 173-100) 37 0 VERTICAL	30.000	.000
(RUGV17)	0412/1H21 (CAL HST 173-100) 37 0 VERTICAL	35.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

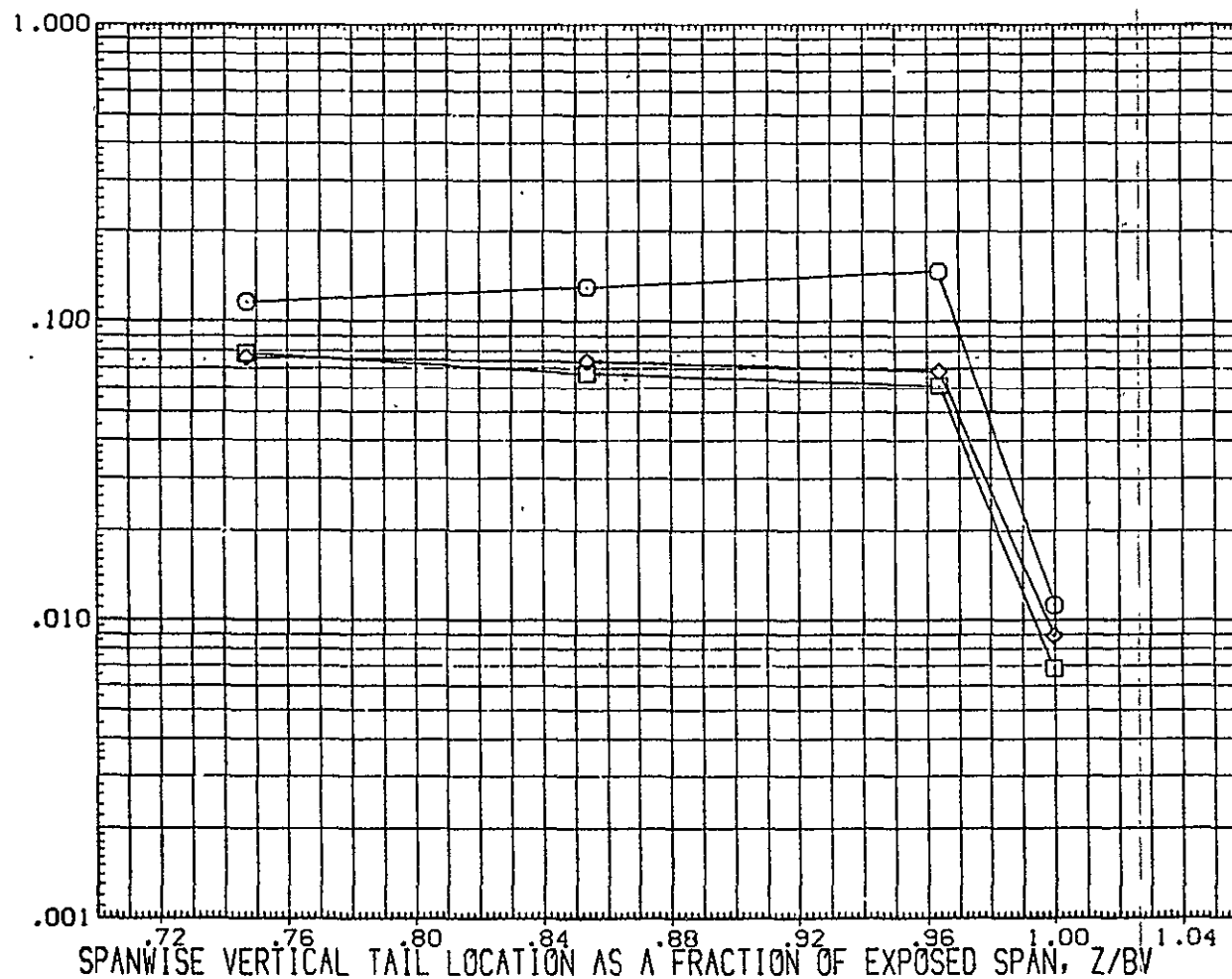


FIG. 26 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L3$

MACH = 12.030 HAW/HT = .900 GAGENO = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV15)	OH12/IH21 (CAL HST 173-100) 37 0	25.000	.000
(RUGV16)	OH12/IH21 (CAL HST 173-100) 37 0	30.000	.000
(RUGV17)	SH12/IH21 (CAL HST 173-100) 37 0	35.000	.000

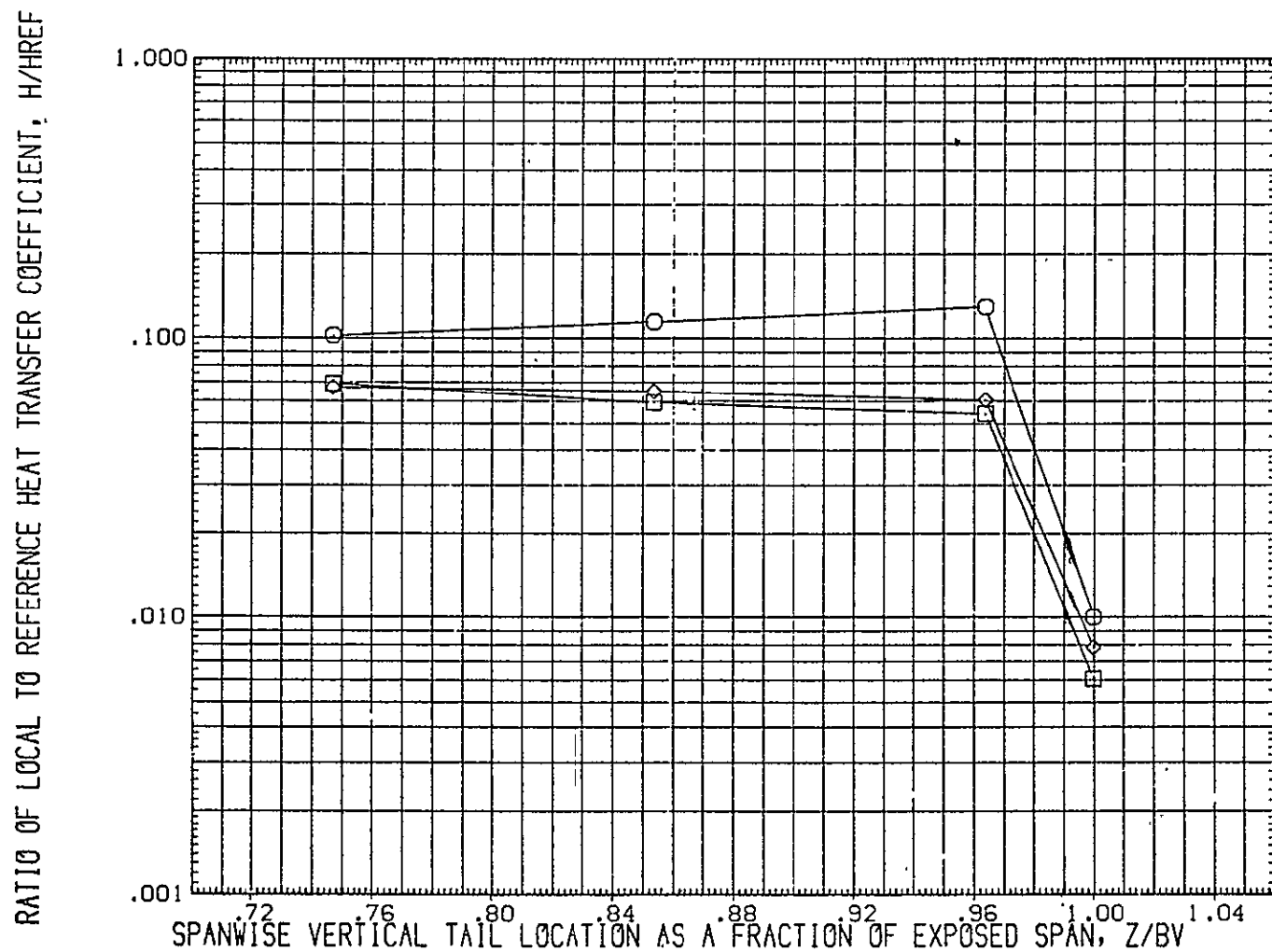


FIG. 26 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L3$
MACH = 12.030 HAW/HT= 1.000 GAGENO= 40.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV15)	OH12/1H21 (CAL HST 173-100) 37 0	25.000	.000
(RUGV16)	OH12/1H21 (CAL HST 173-100) 37 0	30.000	.000
(RUGV17)	OH12/1H21 (CAL HST 173-100) 37 0	35.000	.000

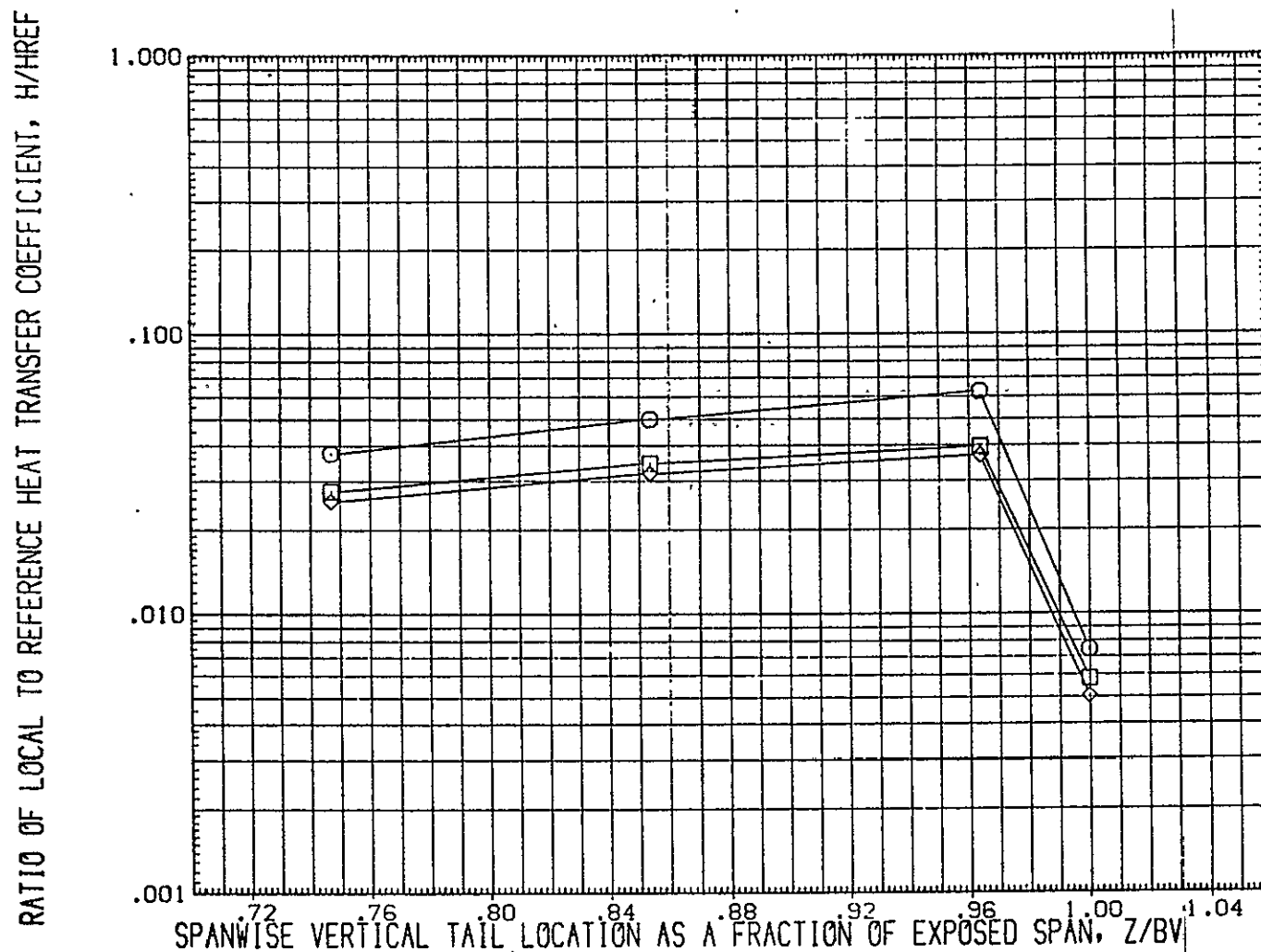


FIG. 26 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L3$

MACH = 15.720 HAW/HT = .850 GAGENO = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV15)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV16)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	30.000	.000
(RUGV17)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	35.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

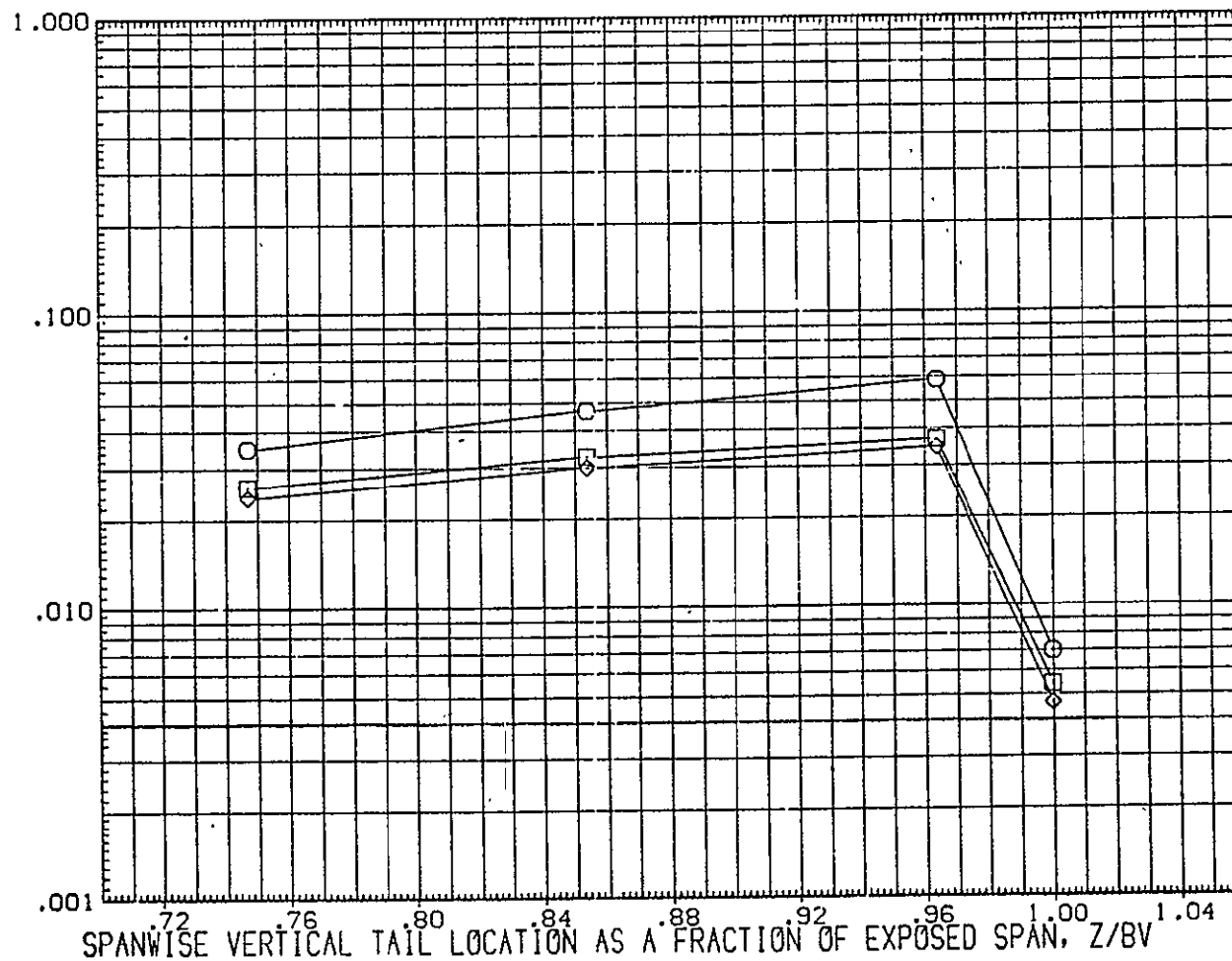


FIG. 26 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER $RN/L3$

MACH = 15.720 HAW/HT = .900 GAGENO = 40.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA
(RUGV15)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	25.000	.000
(RUGV16)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	30.000	.000
(RUGV17)	OH12/1H21 (CAL HST 173-100) 37 0 VERTICAL	35.000	.000

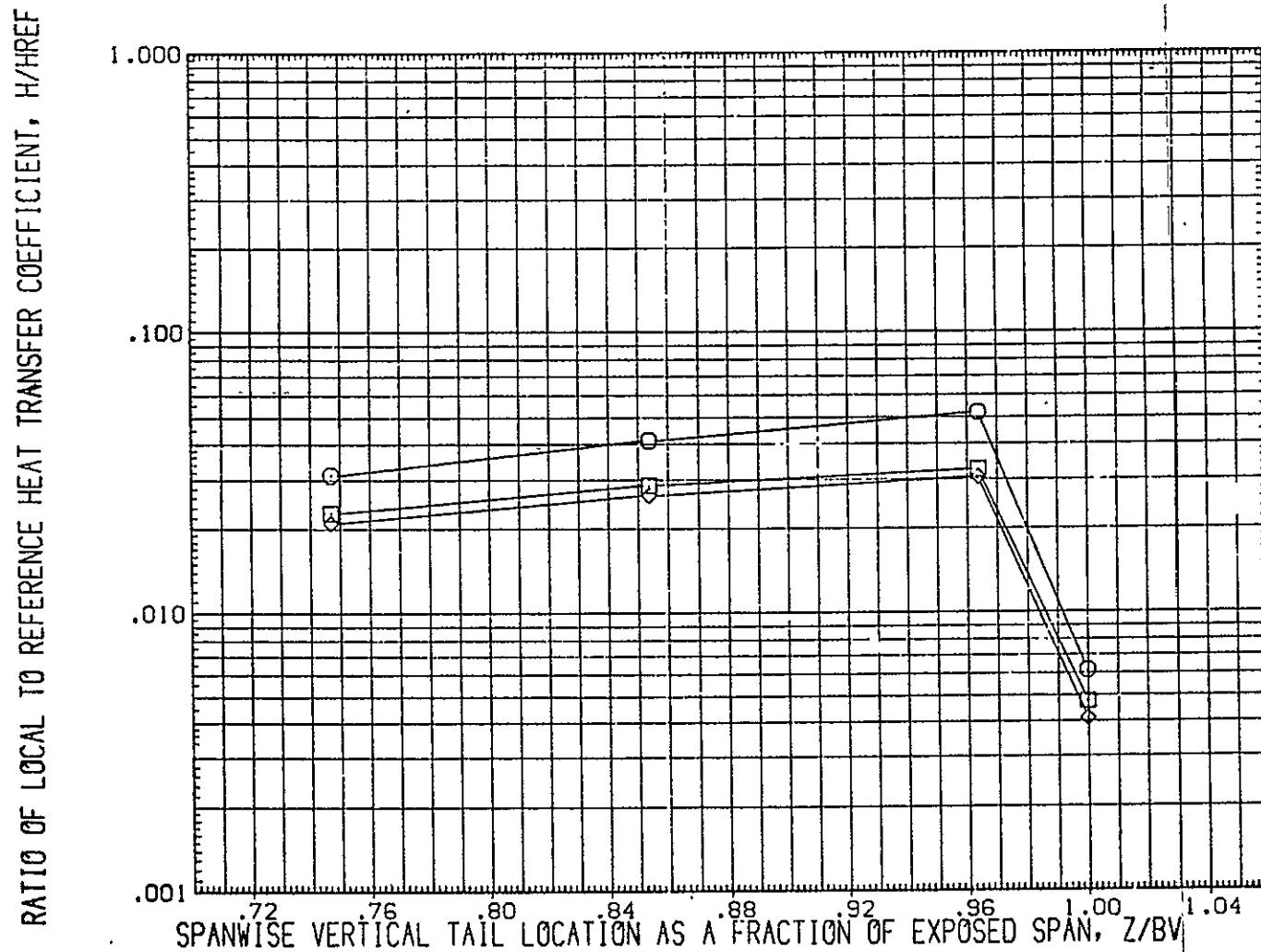


FIG. 26 EFFECT OF HIGH ALPHA ON UNDISTURBED ORBITER TAIL HEAT TRANSFER RN/L3

MACH = 15.720 HAW/HT= 1.000 GAGE NO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION		RN/L	ALPHA	BETA	
(EUG810)	OH12/1H21 (CAL HST 173-100)	37 0	FUSELAGE	.262	25.000	.000
(JUG815)	OH12/1H21 (CAL HST 173-100)	37 0	FUSELAGE	.955	25.000	.000

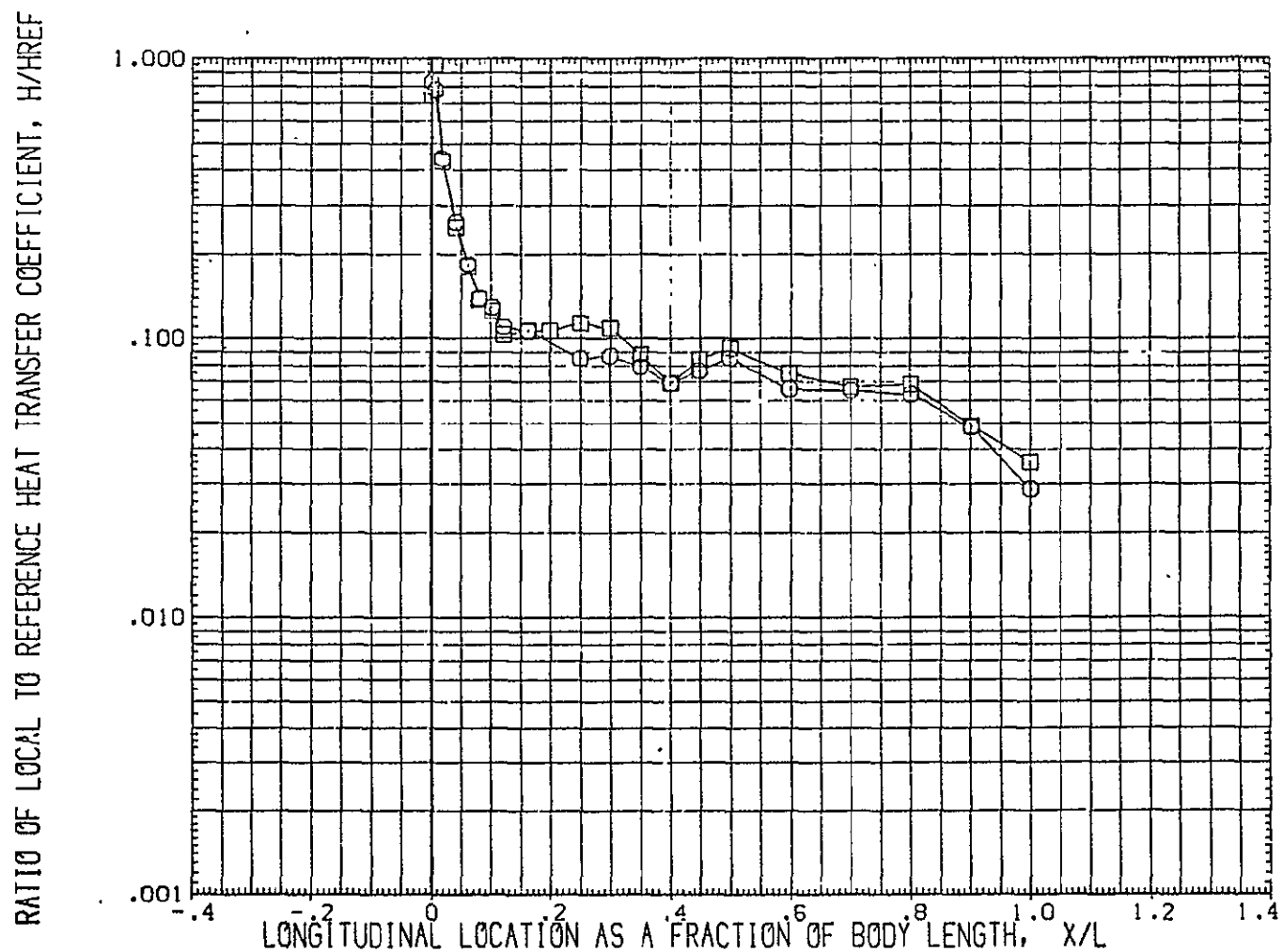


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .850 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUG910)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .262	25.000	.000
(JUG915)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .955	25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, h/h_{REF}

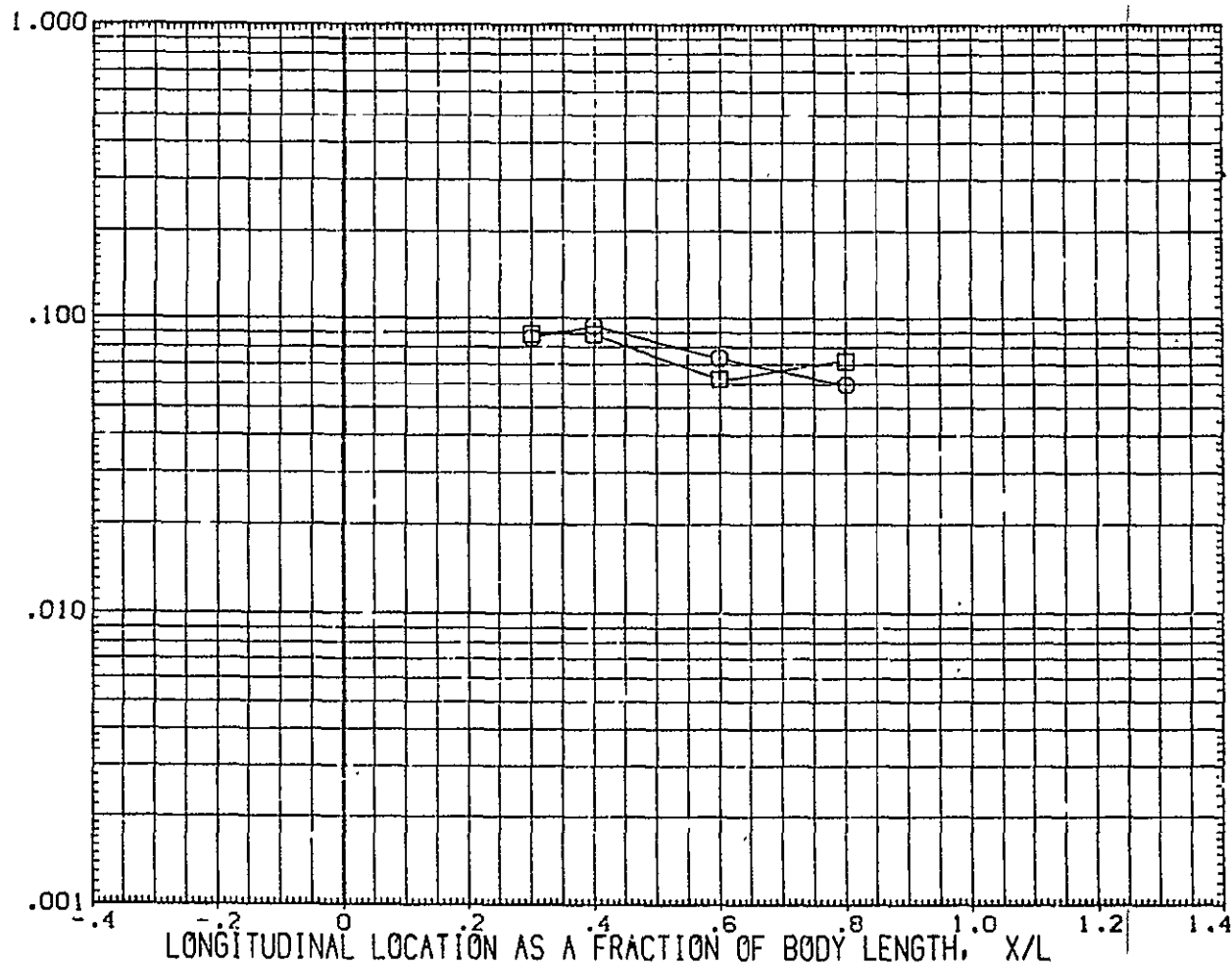


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .850 PHI = 25.000

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DATA SET SYMBOL CONFIGURATION DESCRIPTION RN/L ALPHA BETA

{EUG810}	□ OH12/H21 (CAL HST 173-100) 37 0	FUSELAGE	.262	25.000	.000
{JUG815}	□ OH12/H21 (CAL HST 173-100) 37 0	FUSELAGE	.955	25.000	.000

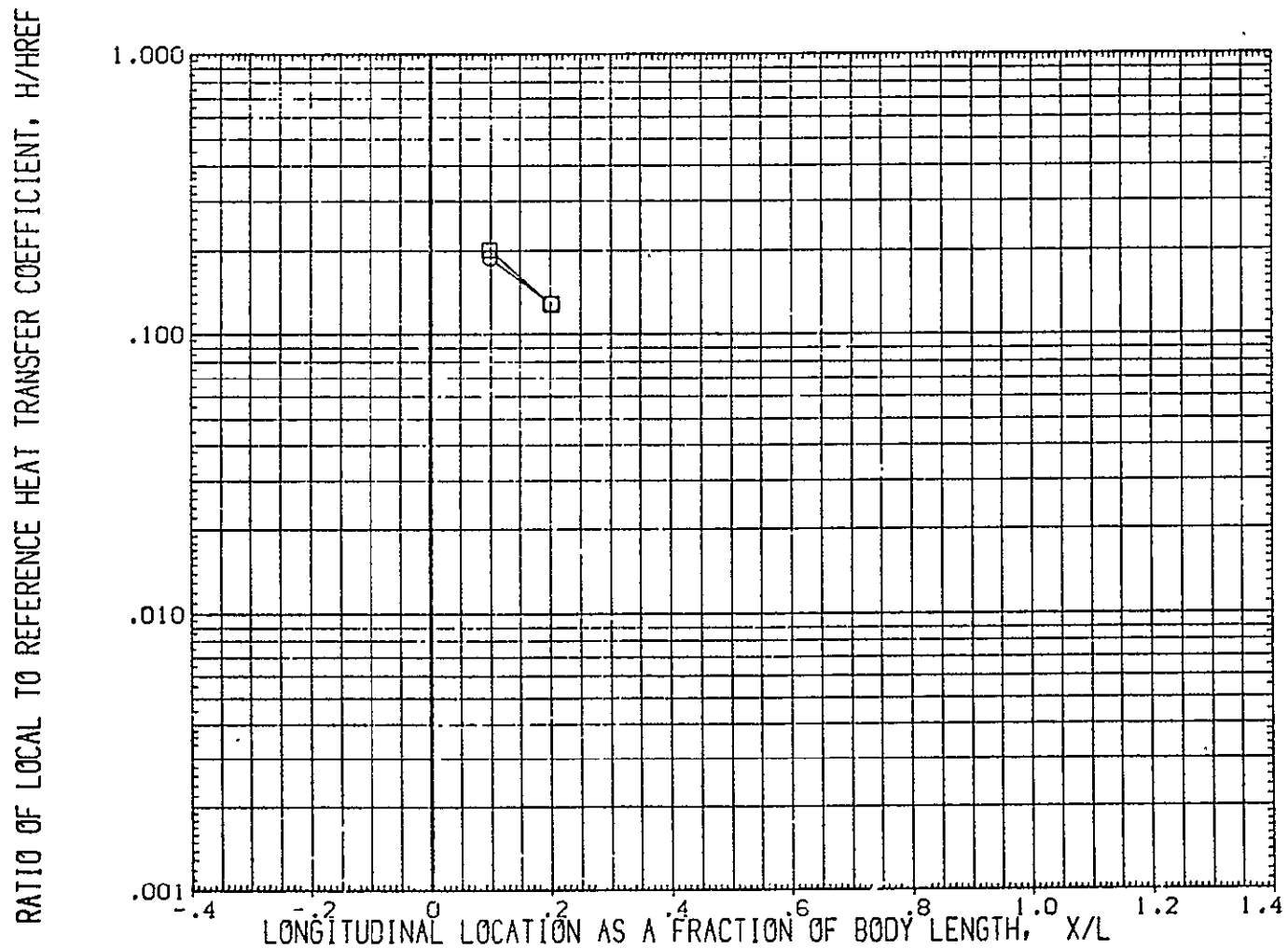


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .850 PHI = 30.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA	
(EUGB10)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.262	25.000	.000
(JUGB15)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.955	25.000	.000

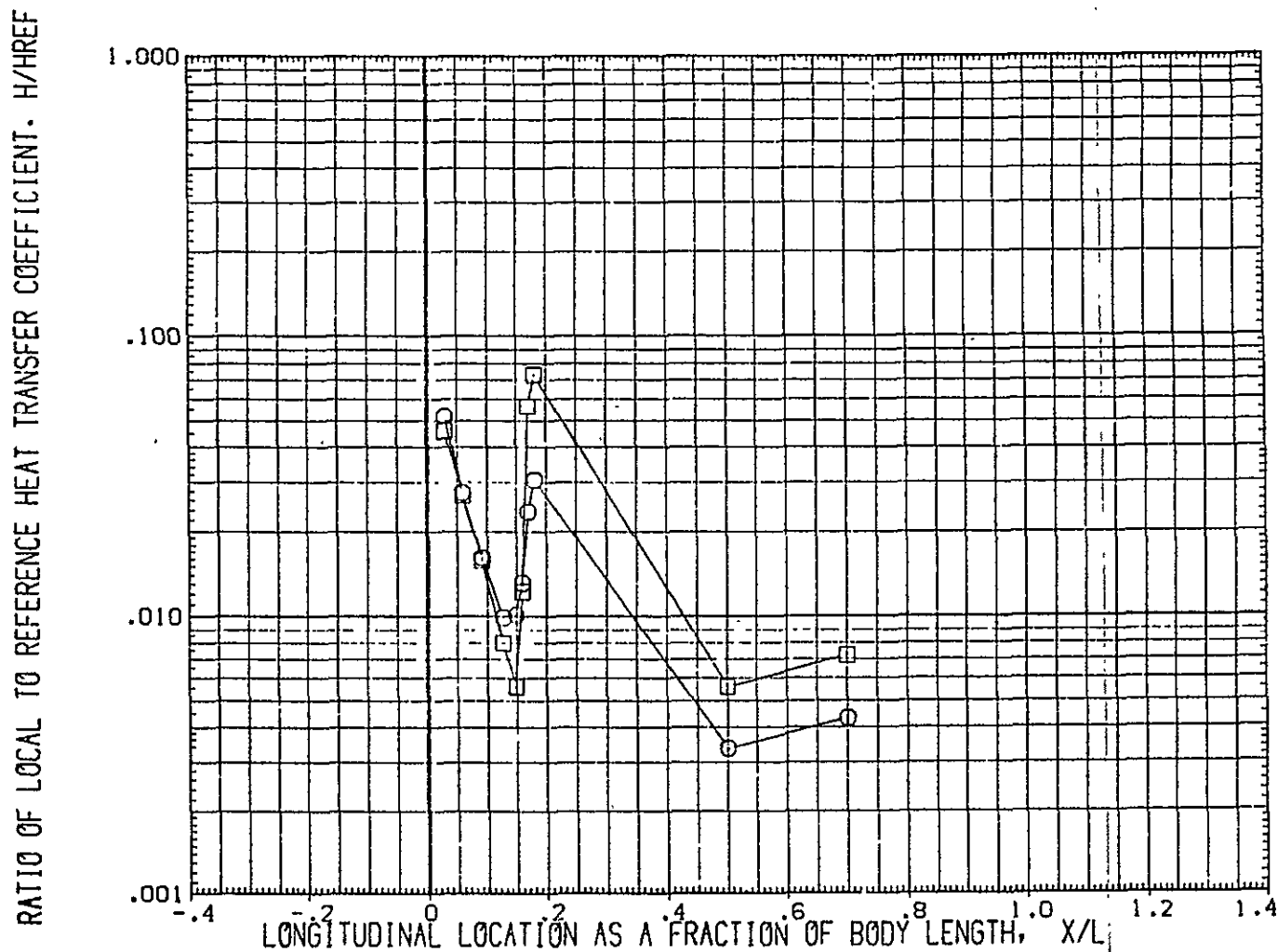


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .850 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PHI/L	ALPHA	BETA
(EUGB10)	OH12/1W21 (CAL HST 173-100) 37 0	.262	25.000	.000
(JUGB15)	OH12/1W21 (CAL HST 173-100) 37 0	.955	25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

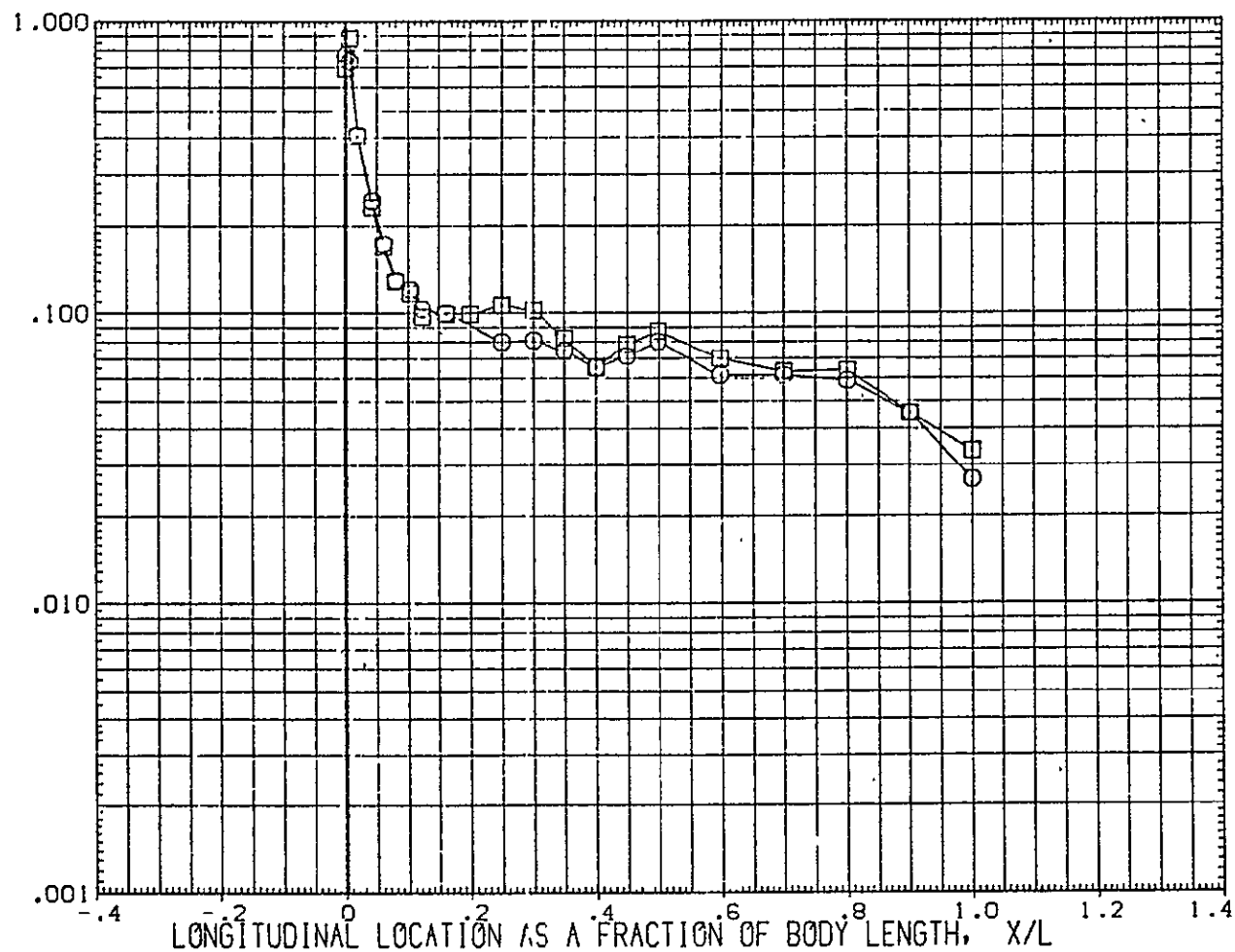


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .900 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	RN/L	ALPHA	BETA
(EUG810)	OH12/1H21 (CAL PST 173-100)	FUSELAGE	.262	25.000	.000
(JUG815)	OH12/1H21 (CAL PST 173-100)	FUSELAGE	.955	25.000	.000

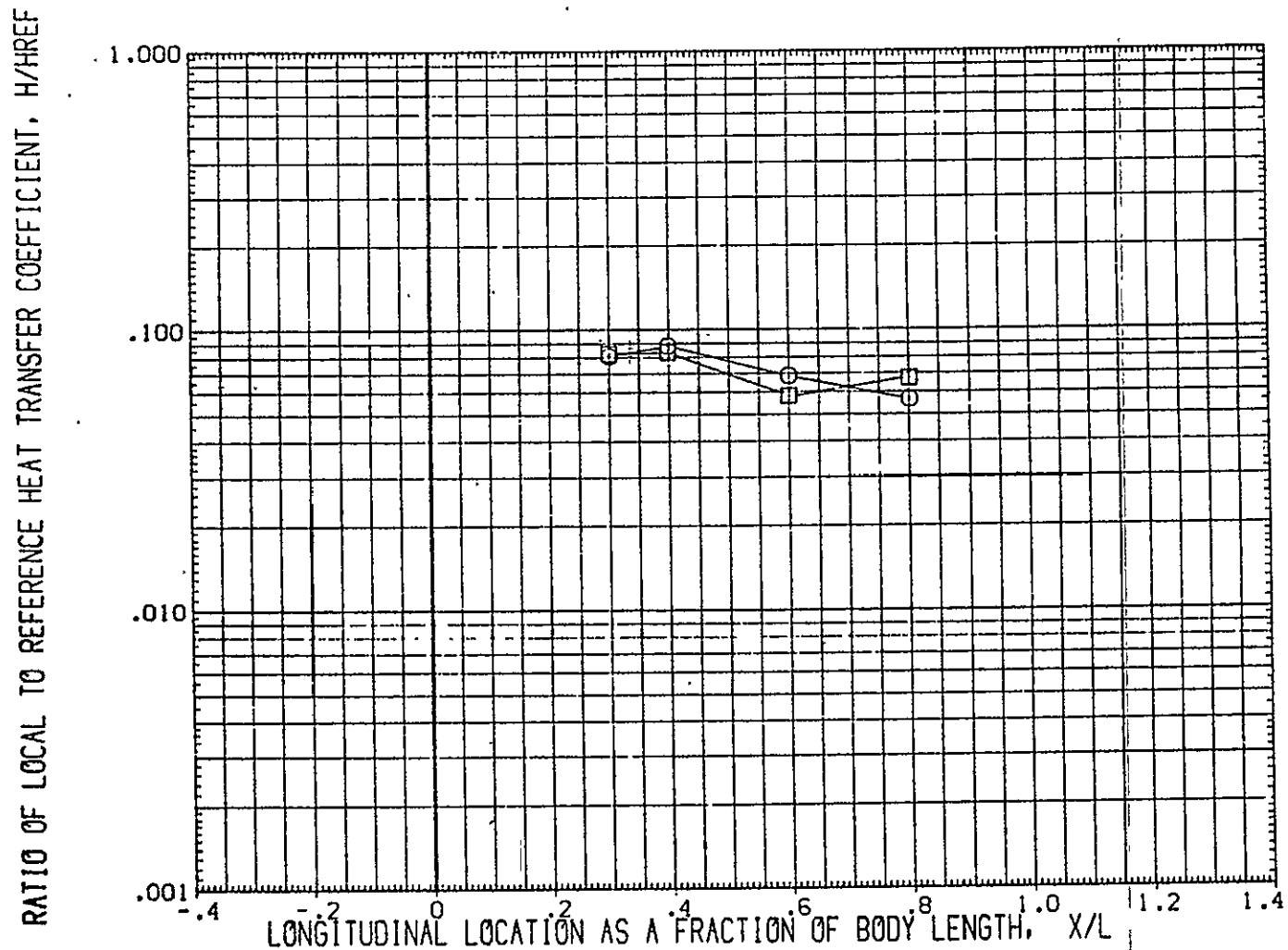


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .900 PHI = 25.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(EU6810)	CH12/1H21 (CAL HST 173-100) 37 0	FLSELAGE	.262	25.000	.000
(JU6815)	CH12/1H21 (CAL HST 173-100) 37 0	FLSELAGE	.955	25.000	.000

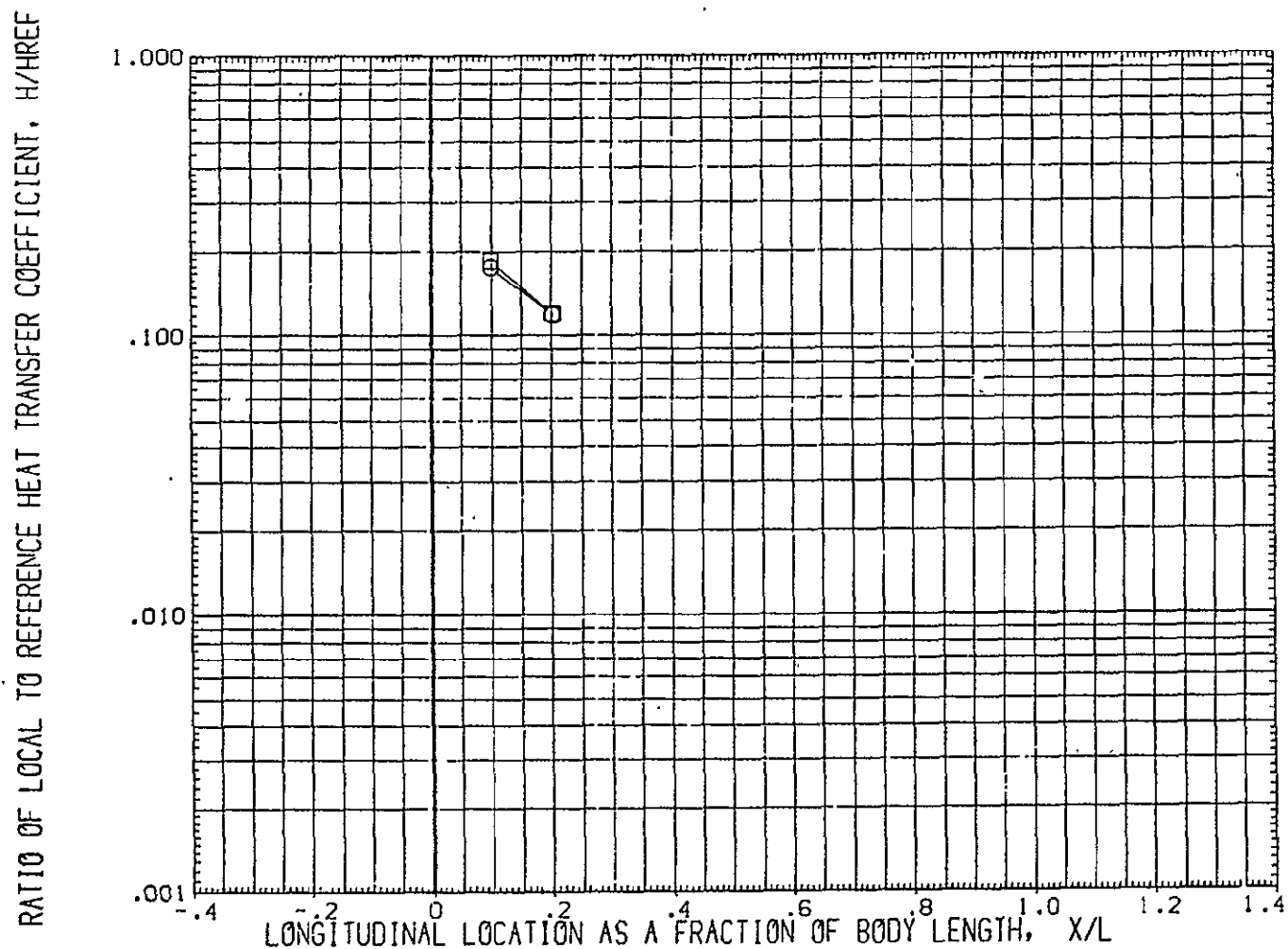


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .900 PHI = 30.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RM/L	ALPHA	BETA
(EUGB10)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .262	25.000	.000
(JUGB15)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .955	25.000	.000

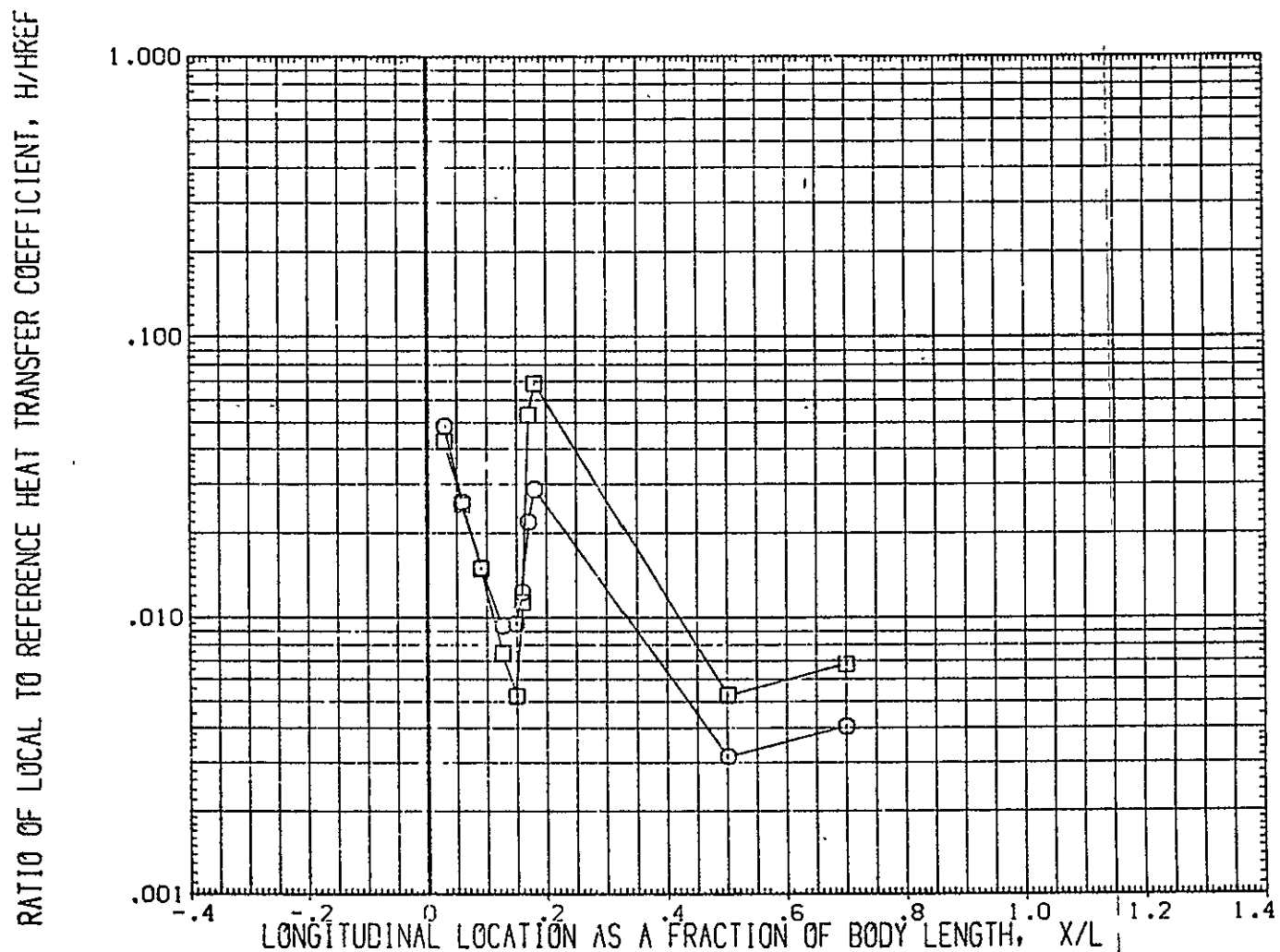


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .900 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGB10)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE .262	25.000	.000
(JUGB15)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE .955	25.000	.000

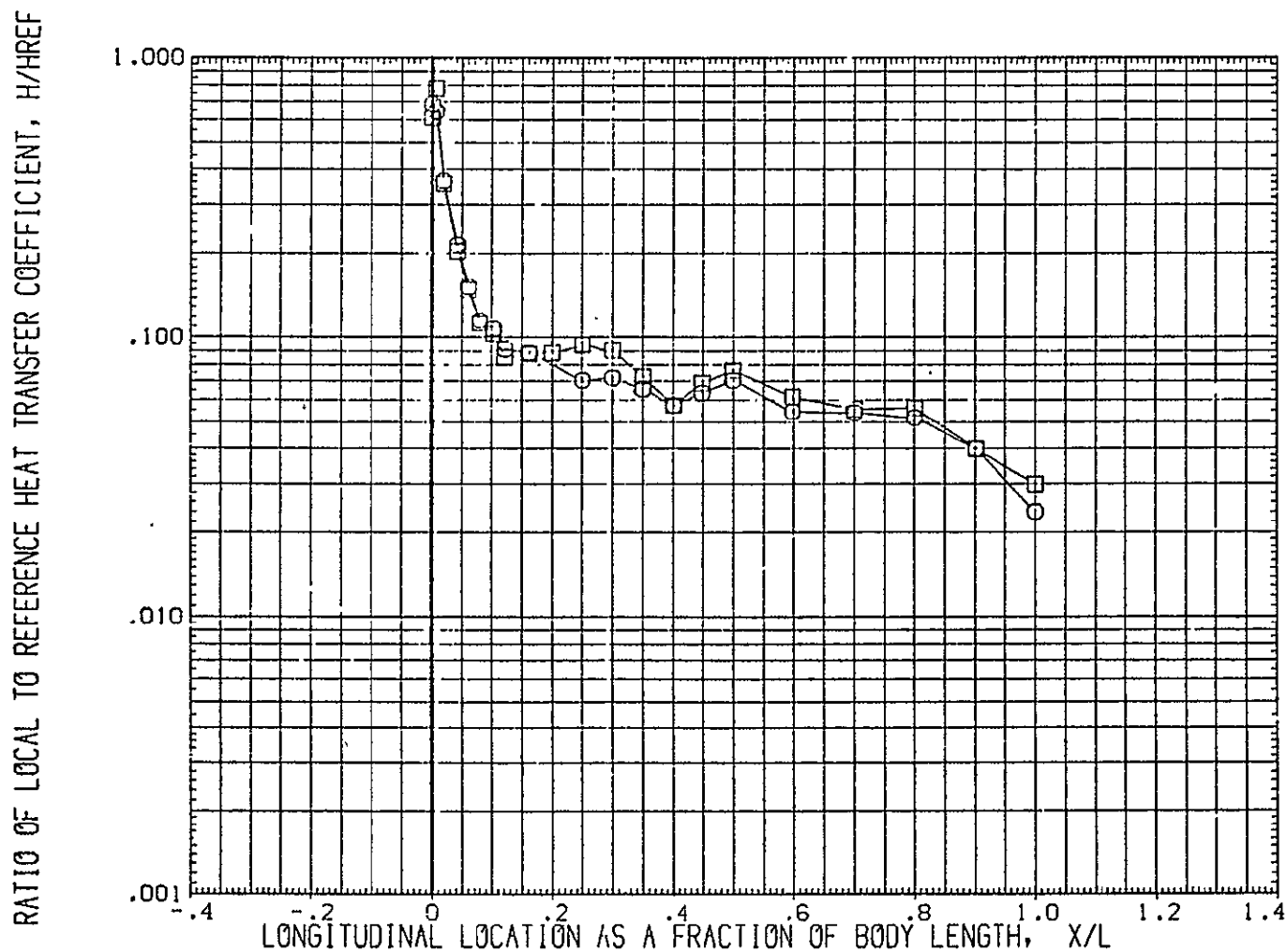


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= 1.000 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .262	25.000	.000
(JUGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .955	25.000	.000

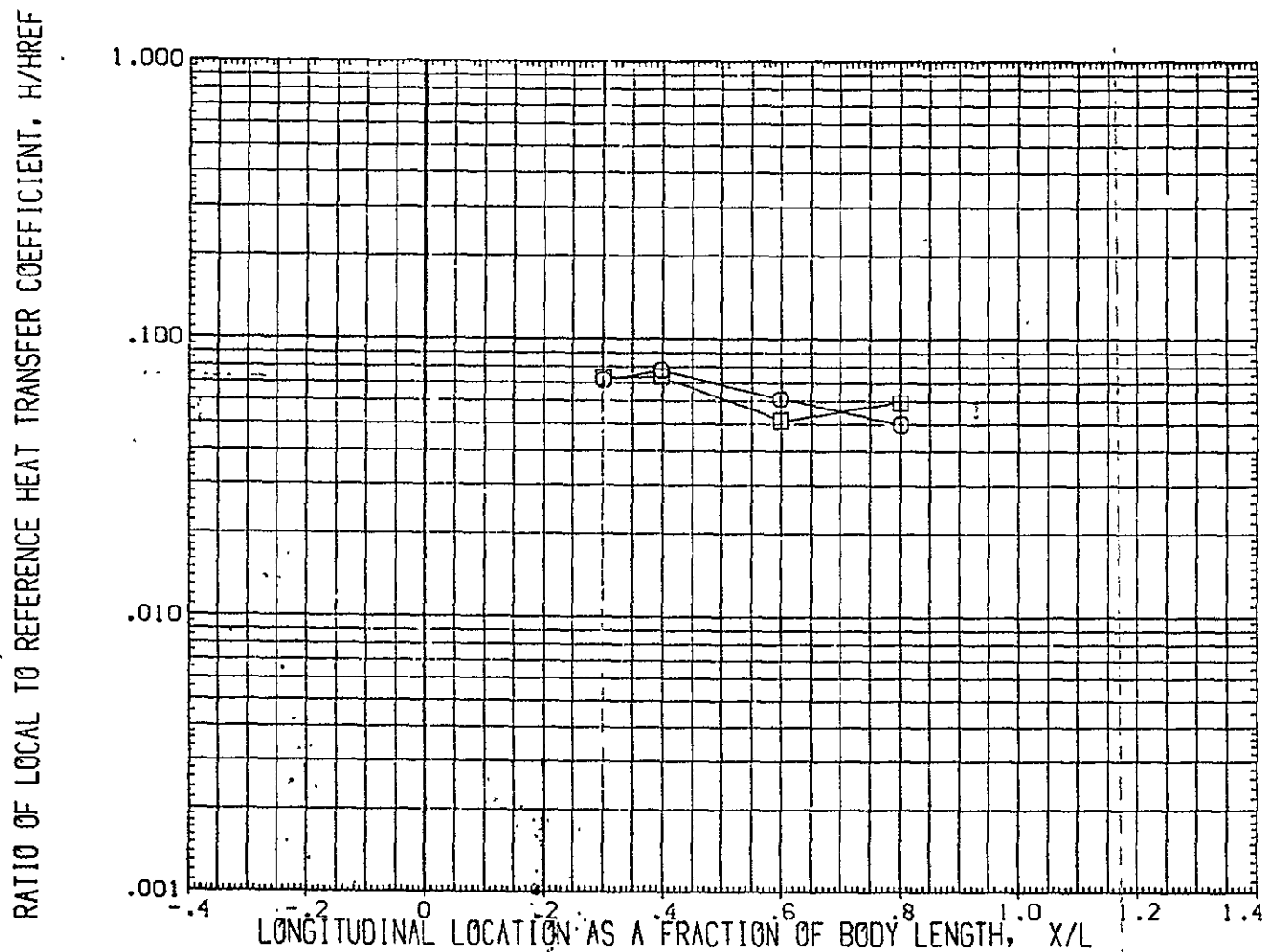


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25
MACH = 12.100 HAW/HT= 1.000 PHI = 25.000 PAGE 826

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .262	25.000	.000
(JUGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .955	25.000	.000

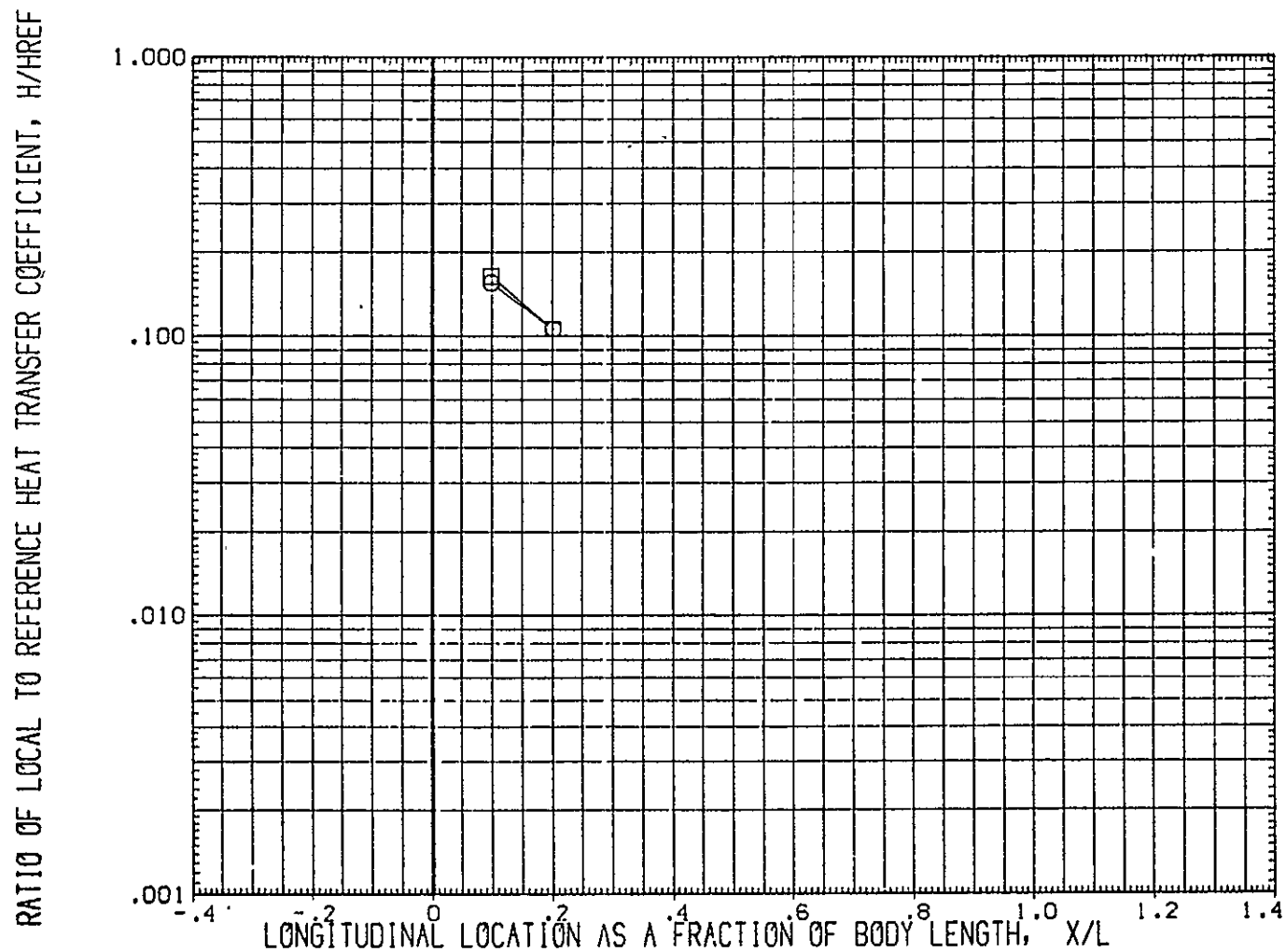


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= 1.000 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUG810)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .262	25.000	.000
(JUG815)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .955	25.000	.000

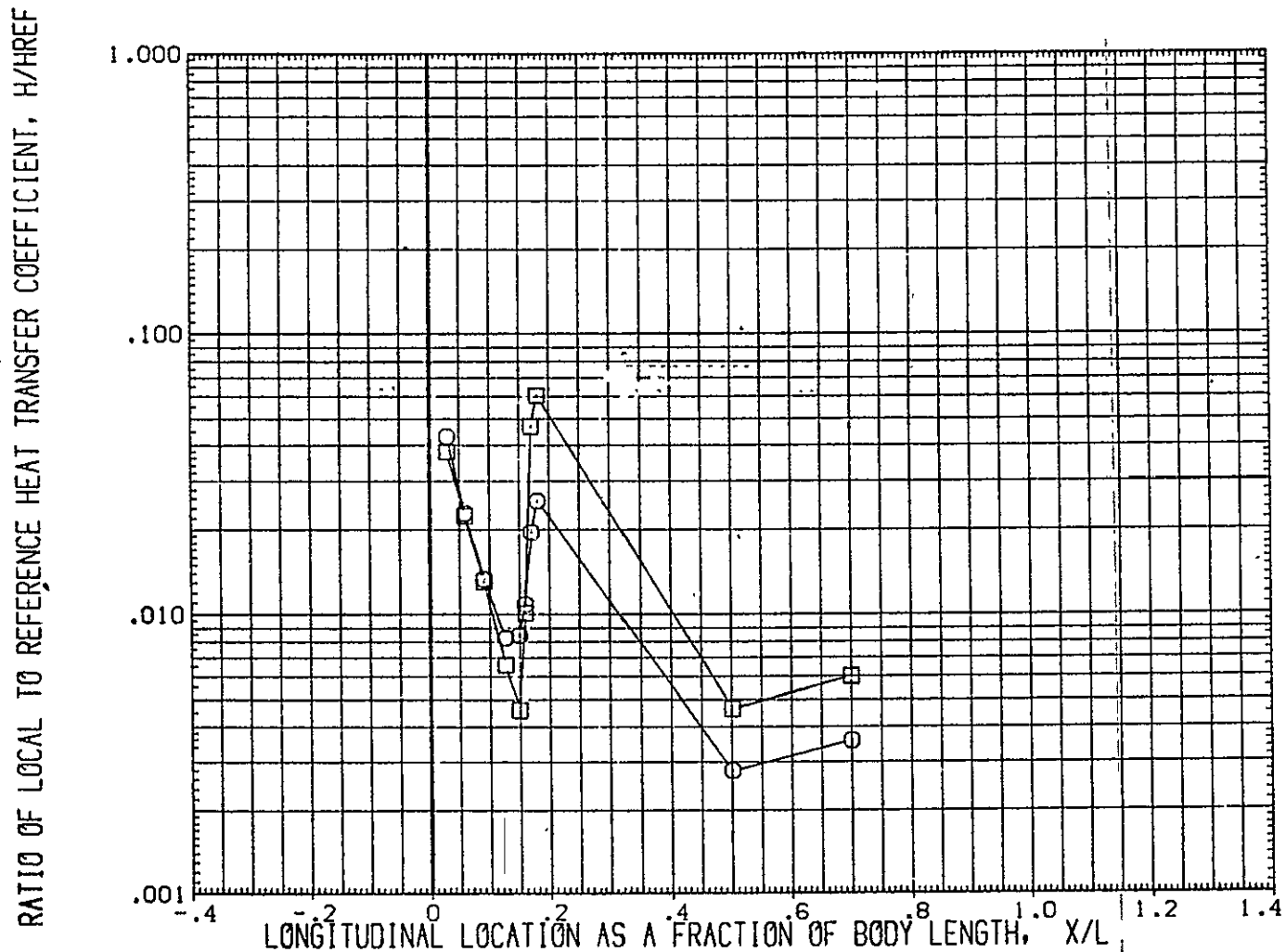


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= 1.000 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA
(FUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .045	25.000	.000
(FUGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .238	25.000	.000

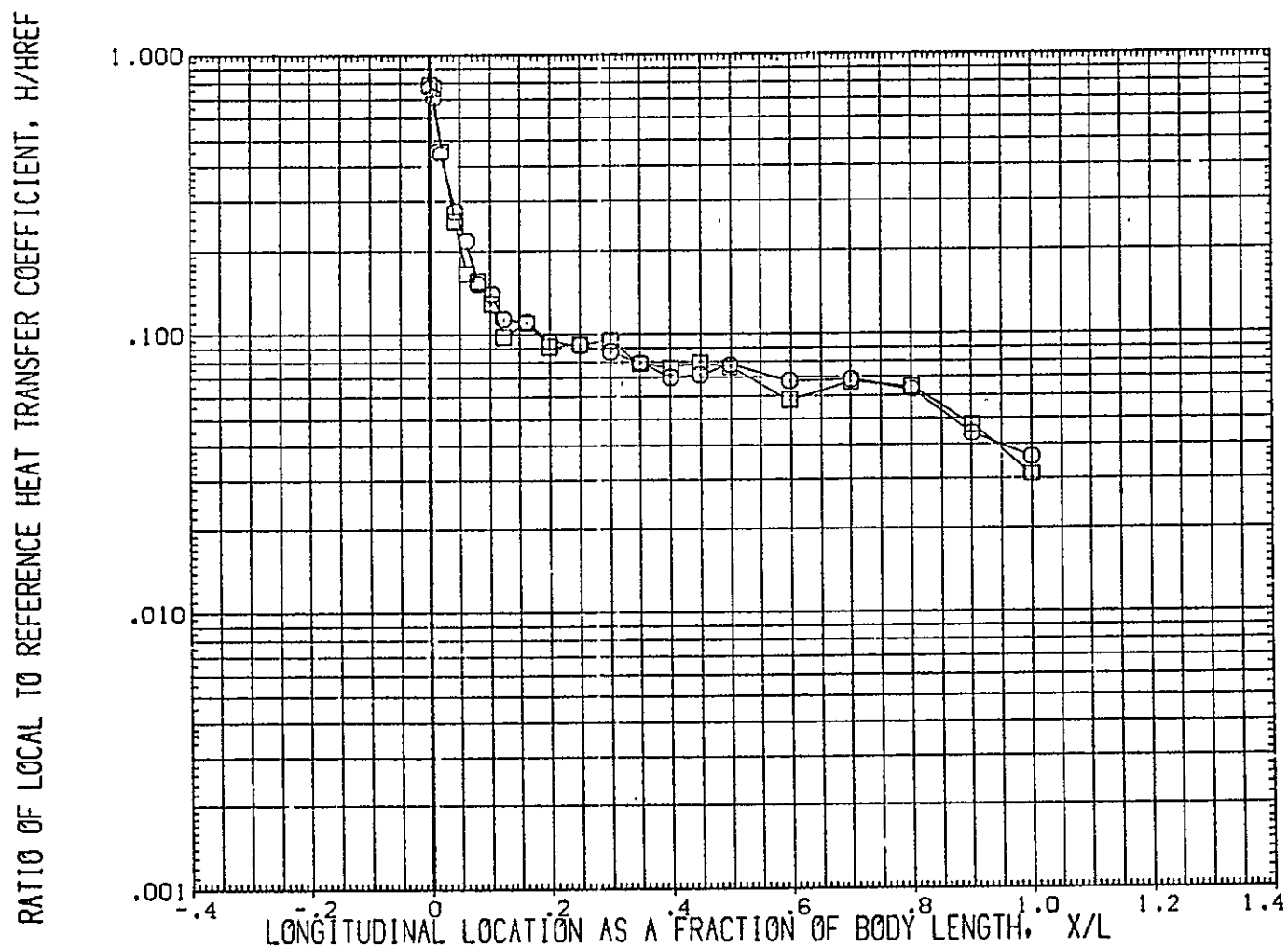


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= .850 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.045	25.000	.000
(IUGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.238	25.000	.000

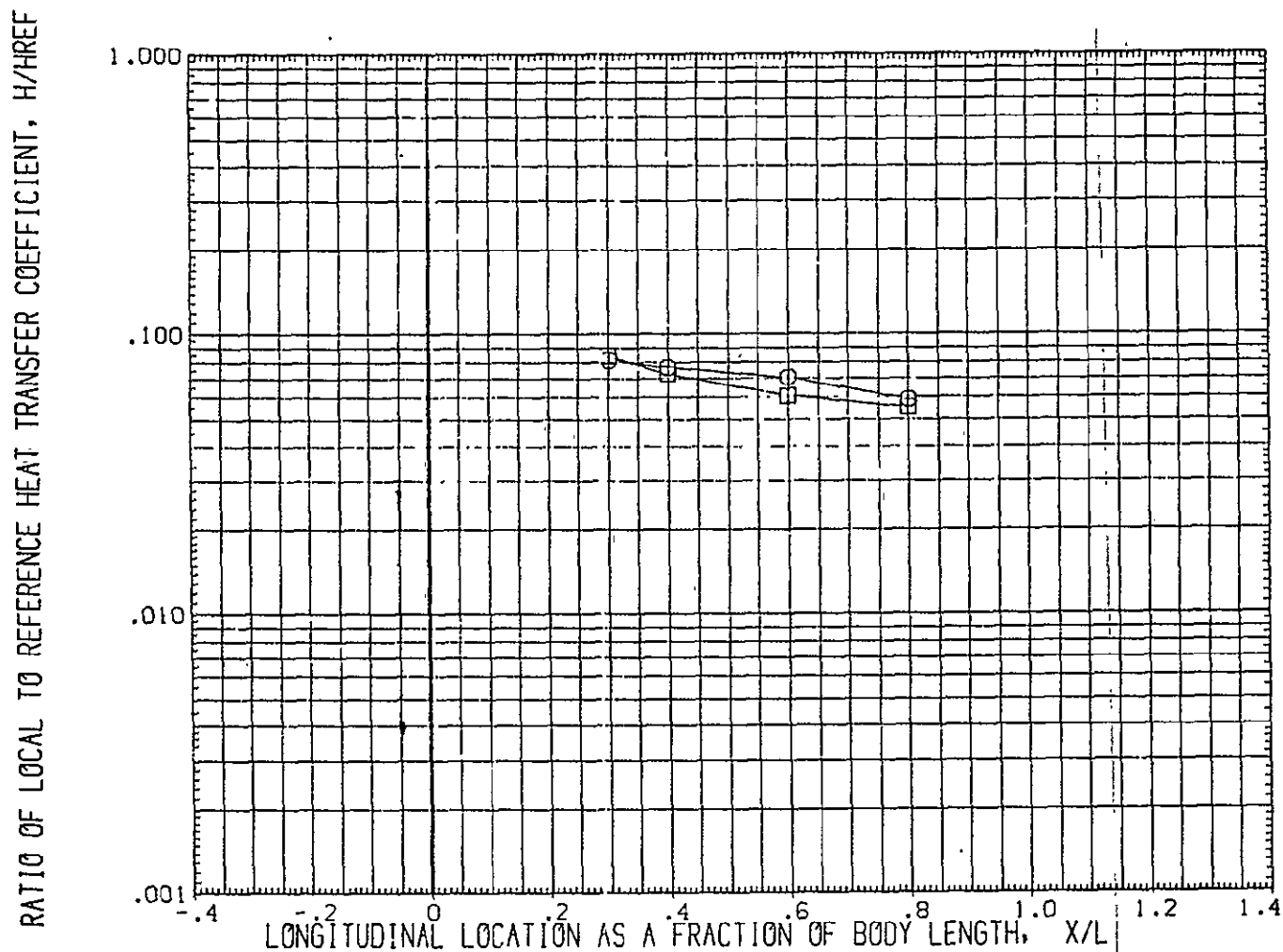


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= .850 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .045	25.000	.000
(1UGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .238	25.000	.000

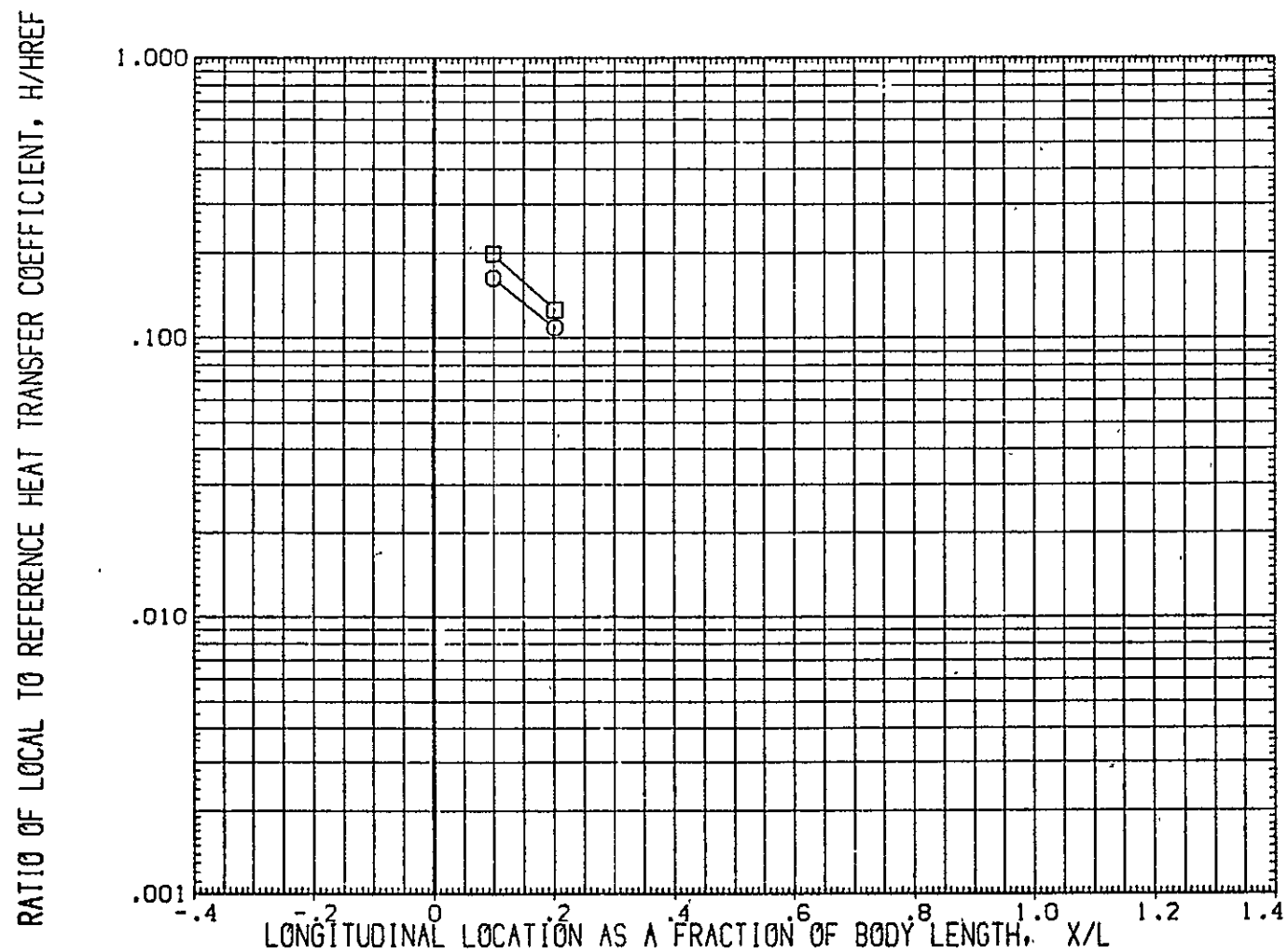


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= .850 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUG810)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	.045	25.000	.000
(FUG815)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	.238	25.000	.000

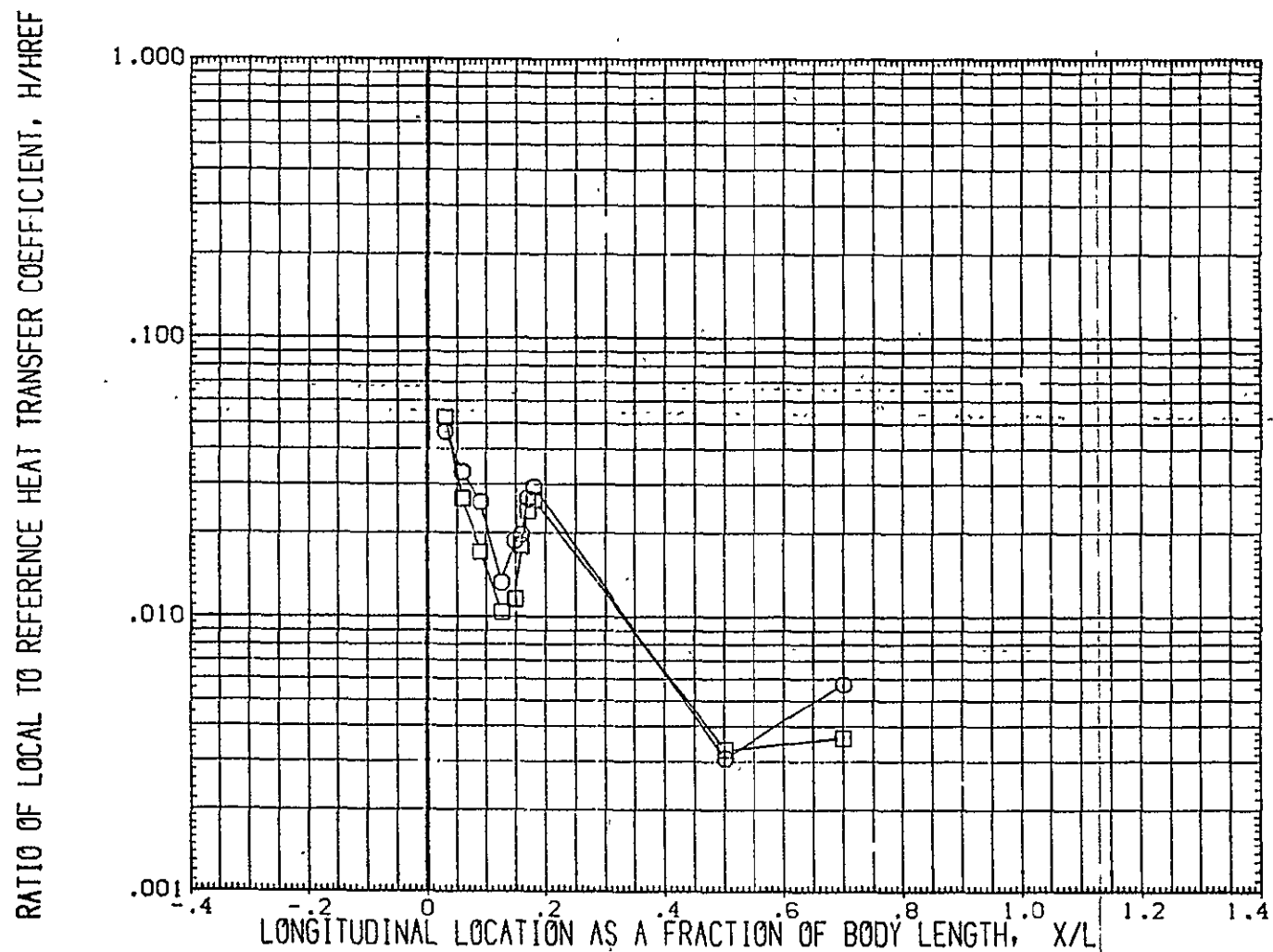


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= .850 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB10)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.045	25.000	.000
(1UGB15)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.238	25.000	.000

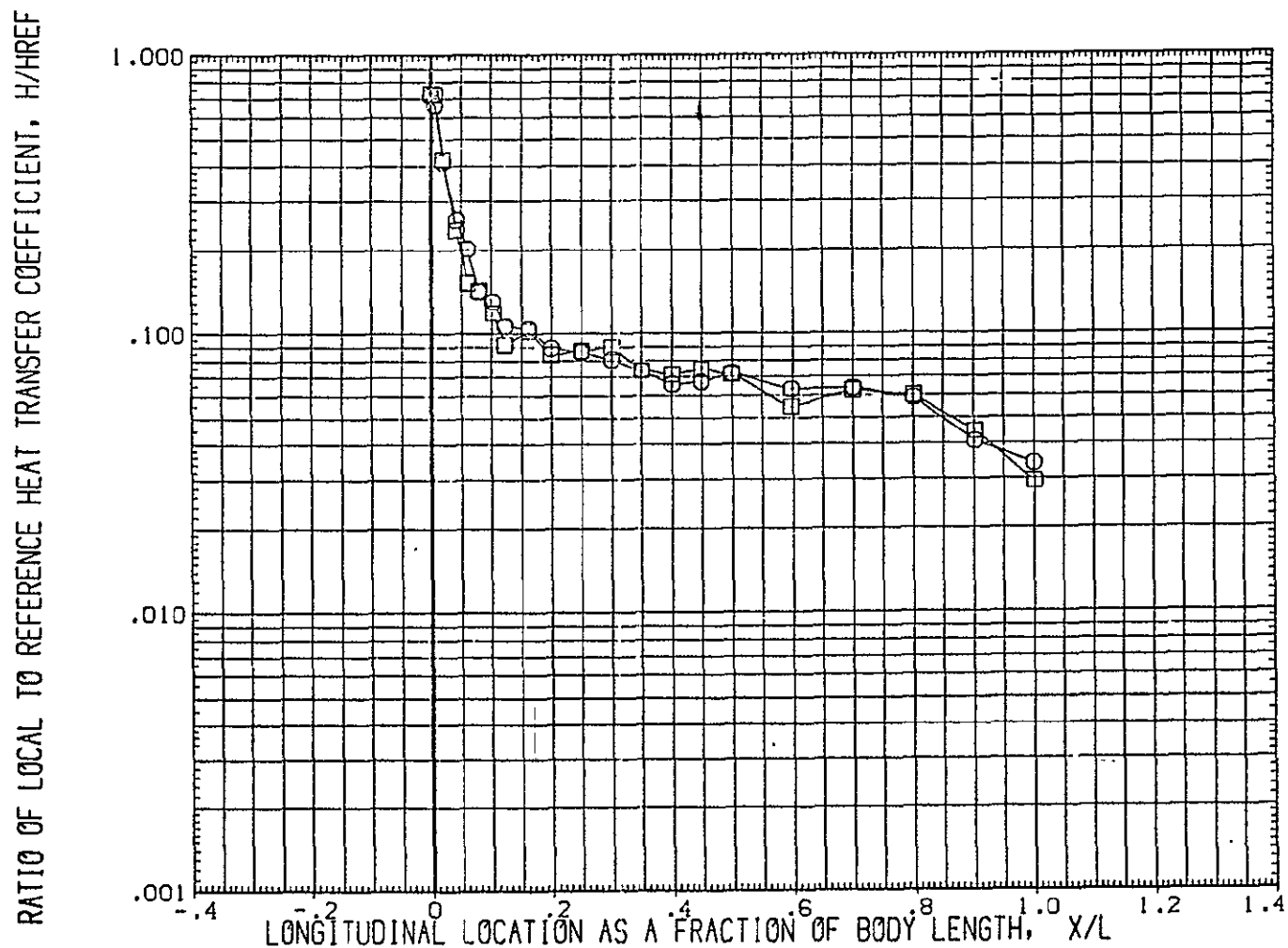


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= .900 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUG810)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.045	25.000	.000
(FUG815)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.238	25.000	.000

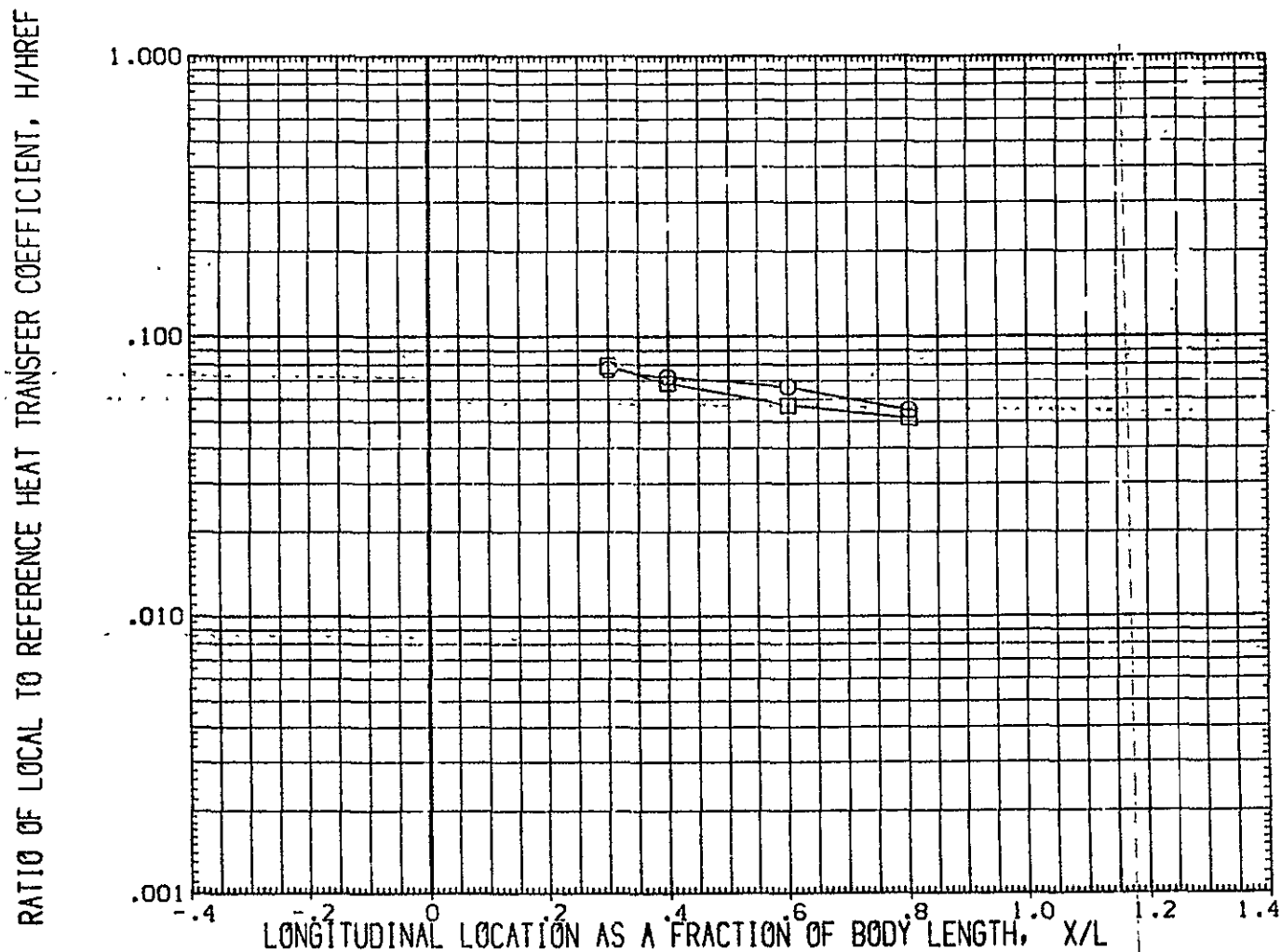


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= .900 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION		RN/L	ALPHA	BETA
(FUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	FUSFLAGE	.045	25.000	.000
(IUGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FUSFLAGE	.238	25.000	.000

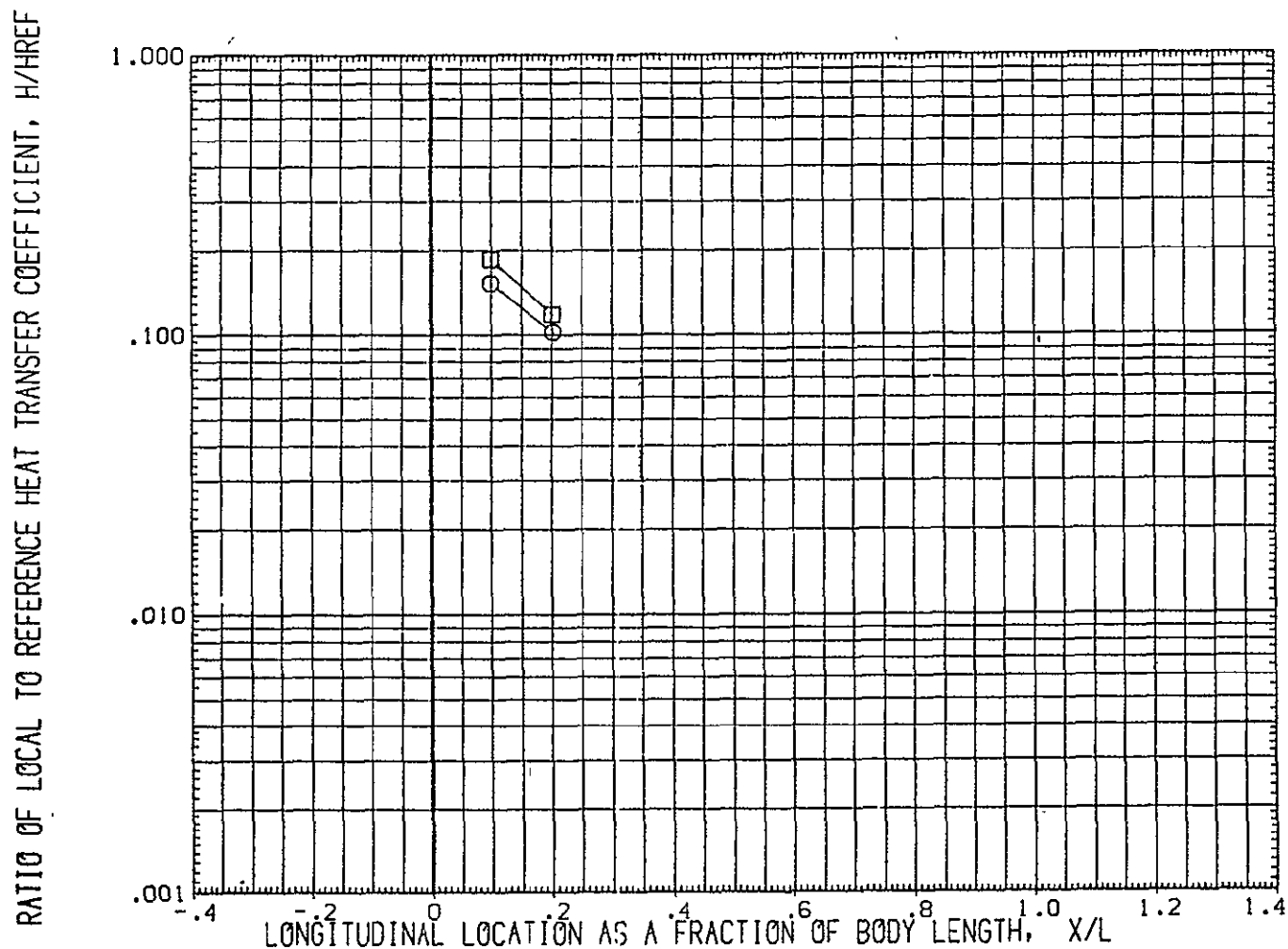


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= .900 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB10)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .045	25.000	.000
(1UGB15)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .238	25.000	.000

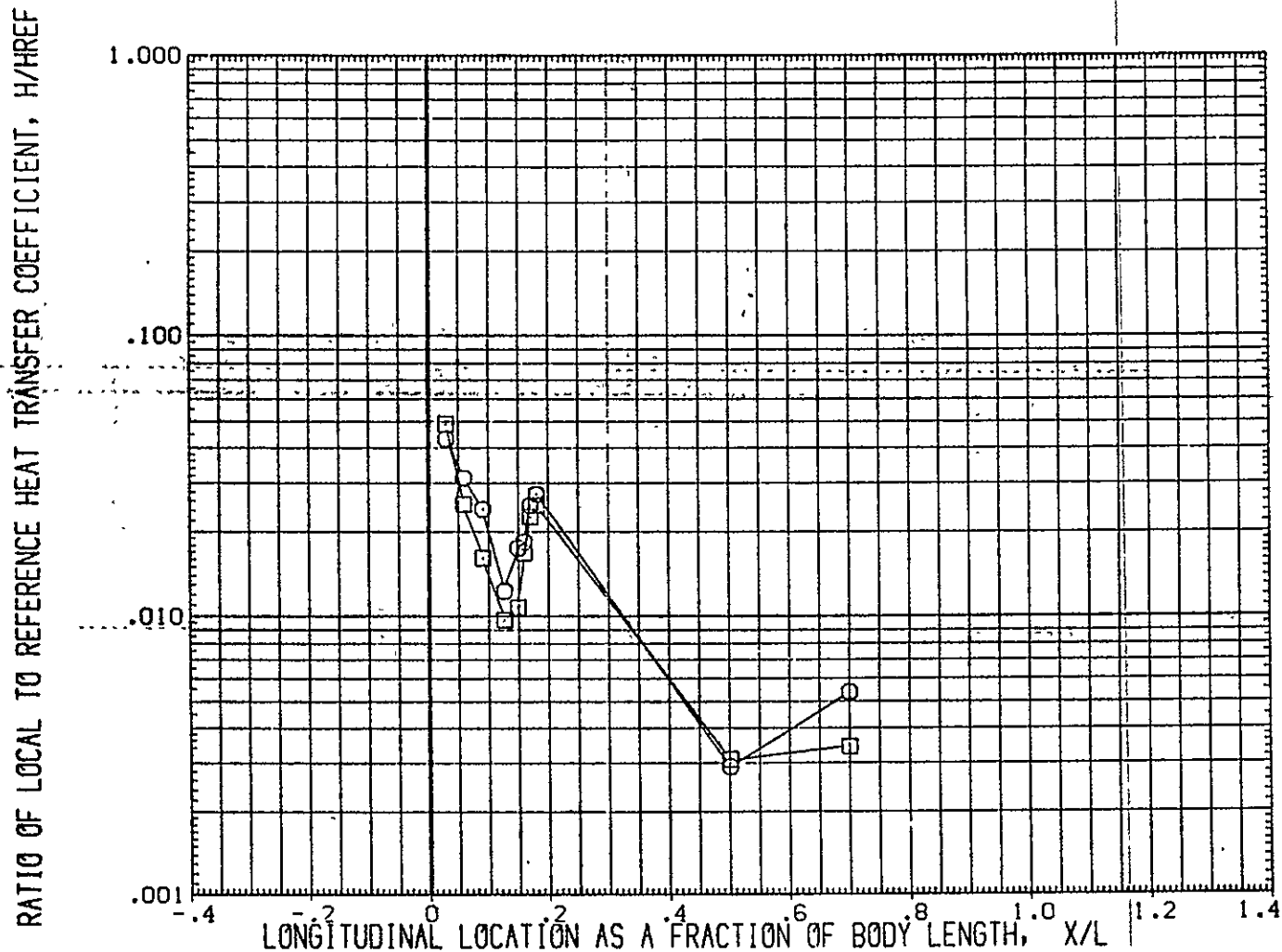


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= .900 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION		RN/L	ALPHA	BETA
(FUGB10)	DM12/1H21 (CAL HST 173-100)	37 0	FUSELAGE	.045	25.000
(FUGB15)	DM12/1H21 (CAL HST 173-100)	37 0	FUSELAGE	.238	25.000

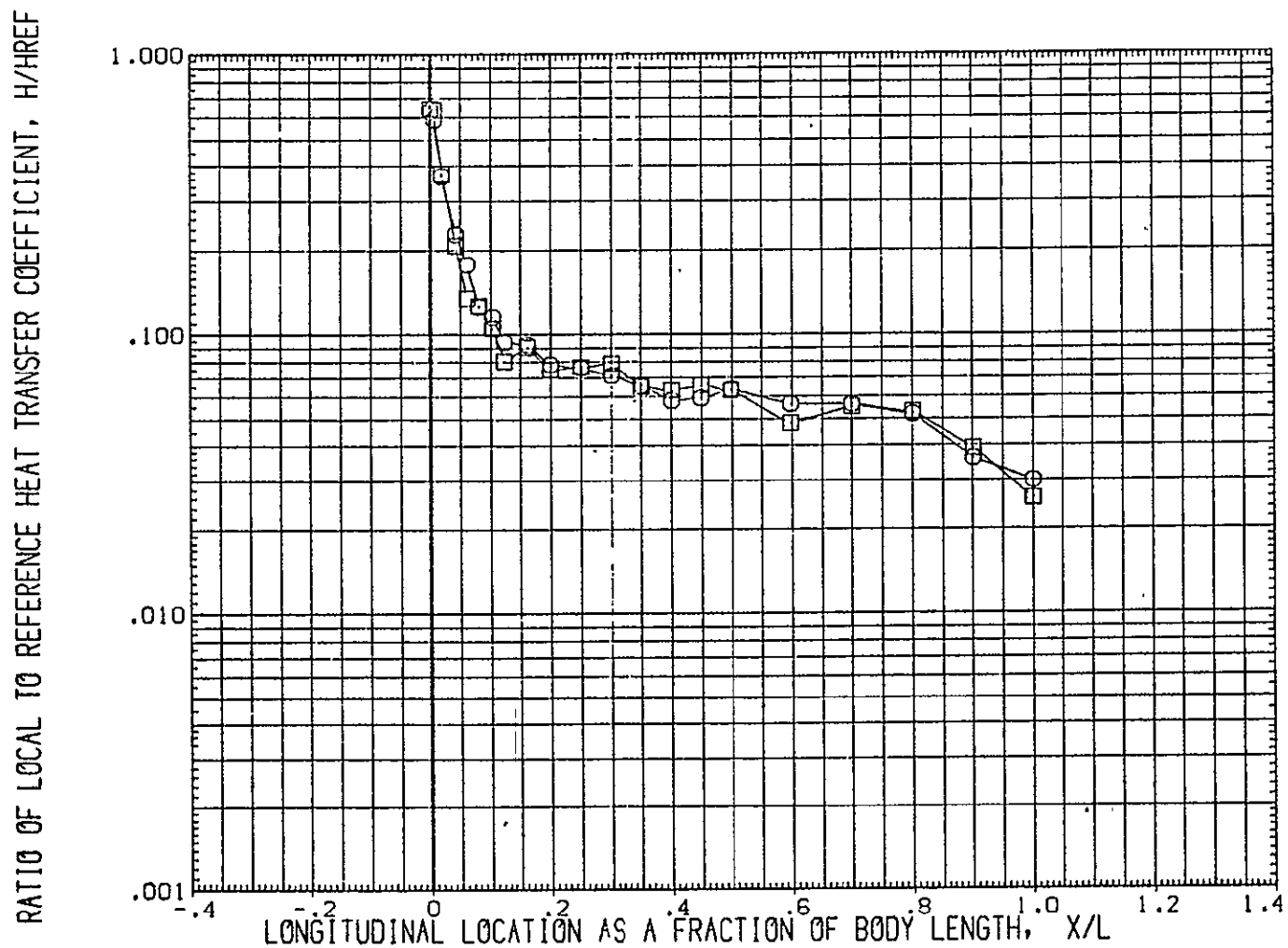


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= 1.000 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGB10)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.045	25.000	.000
(IUGB15)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.238	25.000	.000

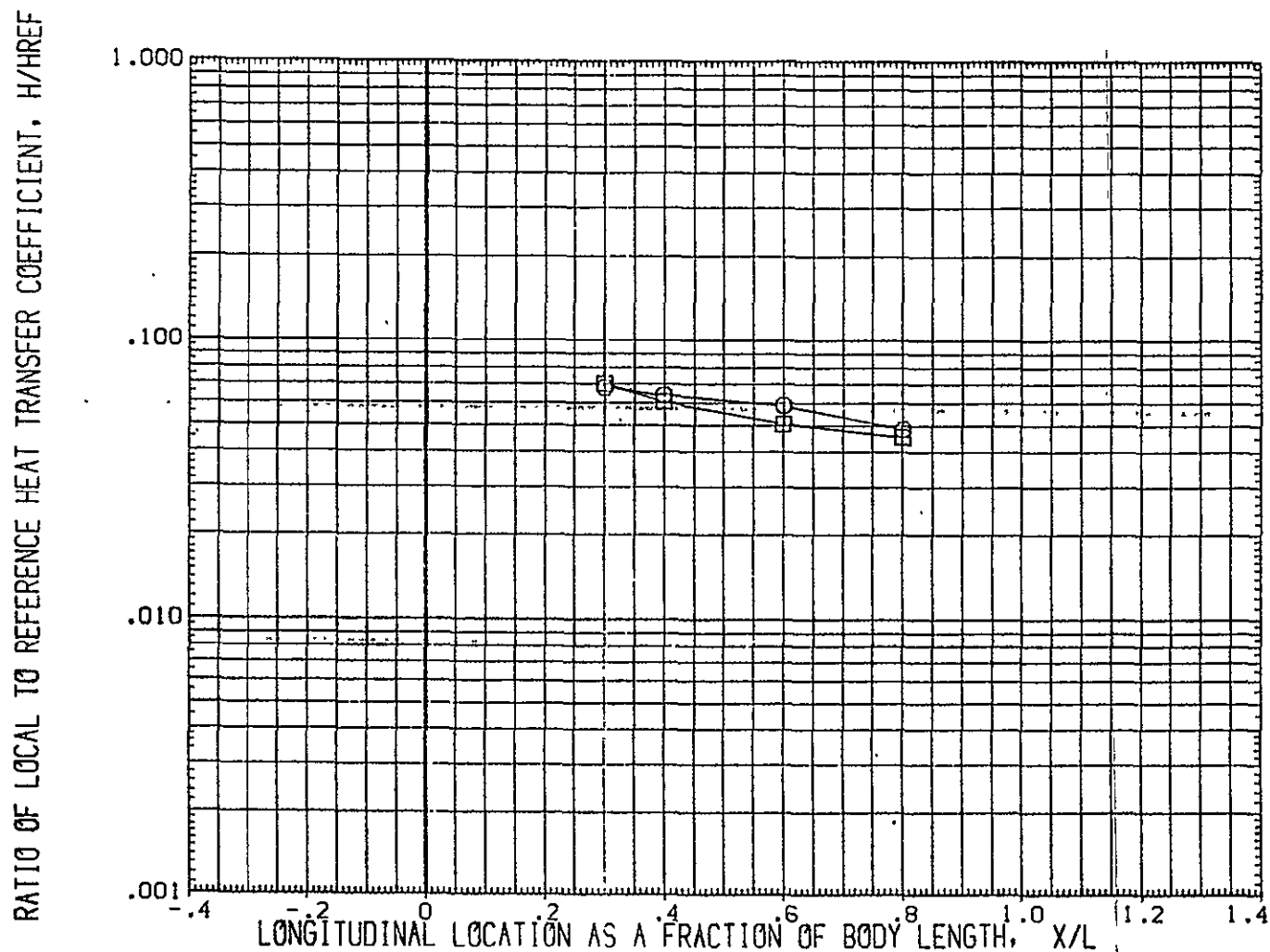


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25
 CH = 15.880 HAW/HT= 1.000 PHI = 25.000 PAGE 838

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB10)	CH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	.045	25.000	.000
(1UGB15)	CH12/1421 (CAL HST 173-100) 37 0 FUSELAGE	.238	25.000	.000

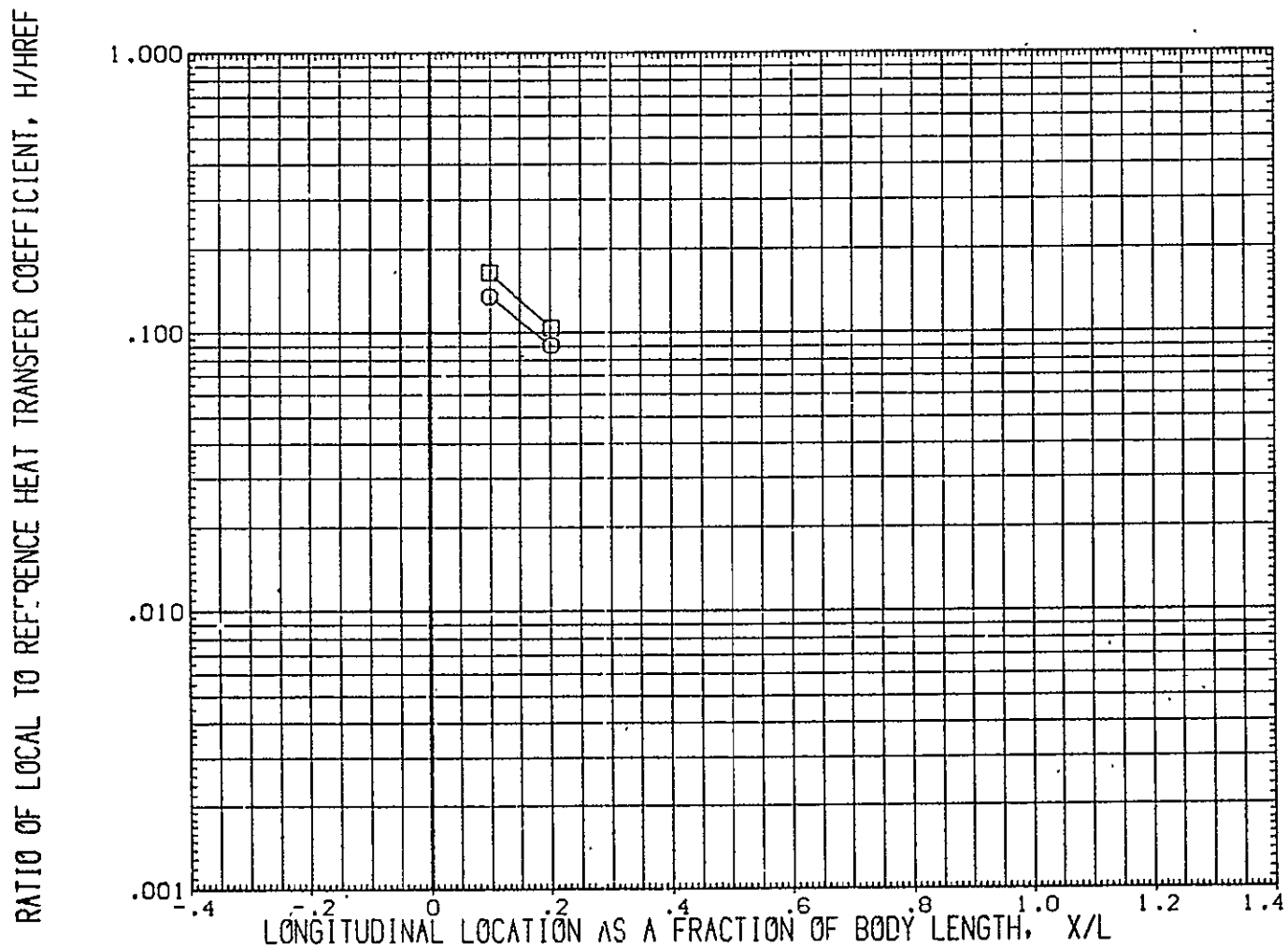


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= 1.000 PH: = 30.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION		RN/L	ALPHA	BETA	
(FUGB10)	0412/1H21 (CAL HST 173-100)	37 0	FUSELAGE	.045	25.000	.000
(1UGB15)	0412/1H21 (CAL HST 173-100)	37 0	FUSELAGE	.238	25.000	.000

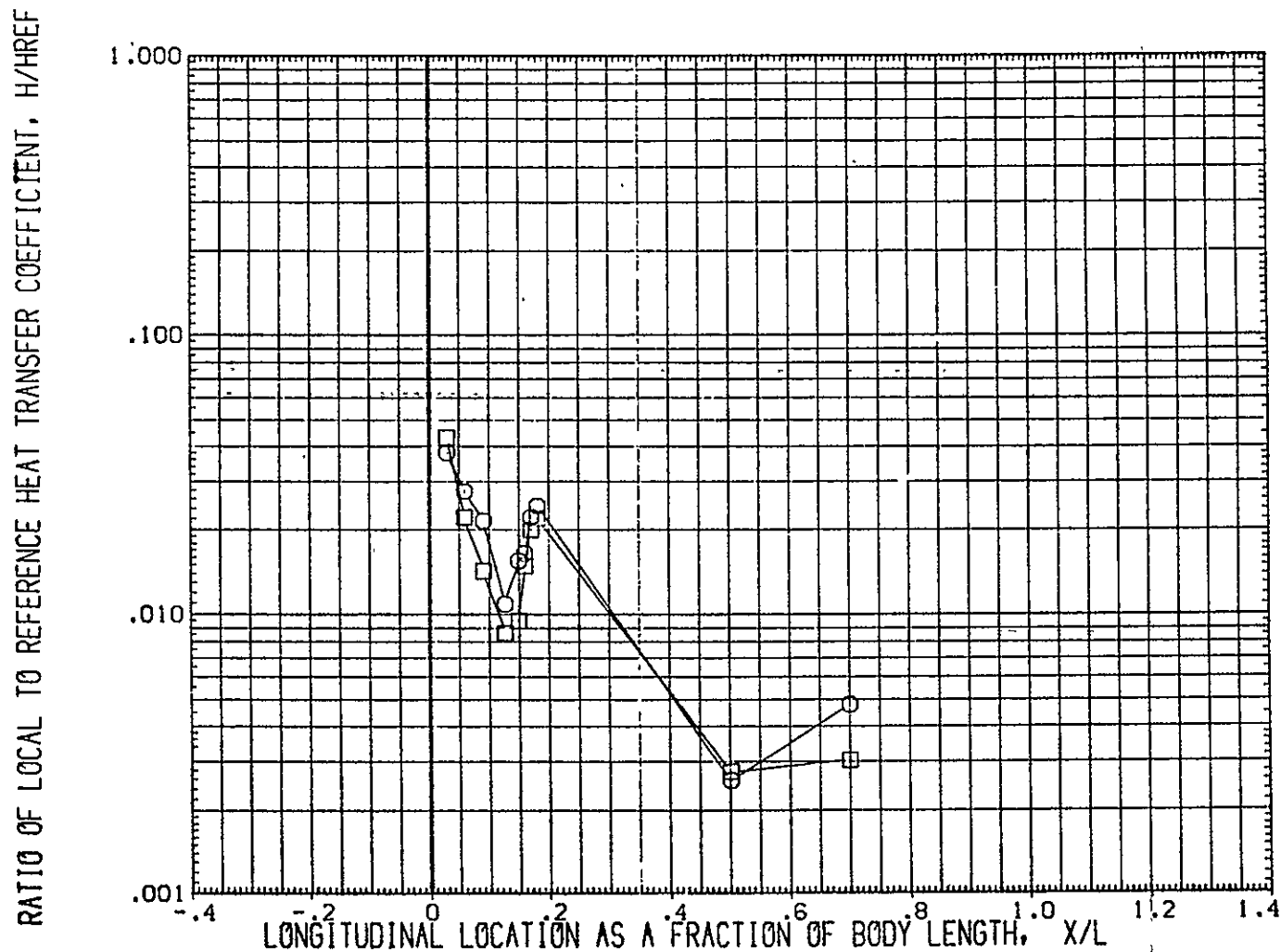


FIG.27 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= 1.000 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	RN/L	ALPHA	BETA
(EUGW10)	CH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.262	25.000	.000
(JUGW1E)	CH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.955	25.000	.000

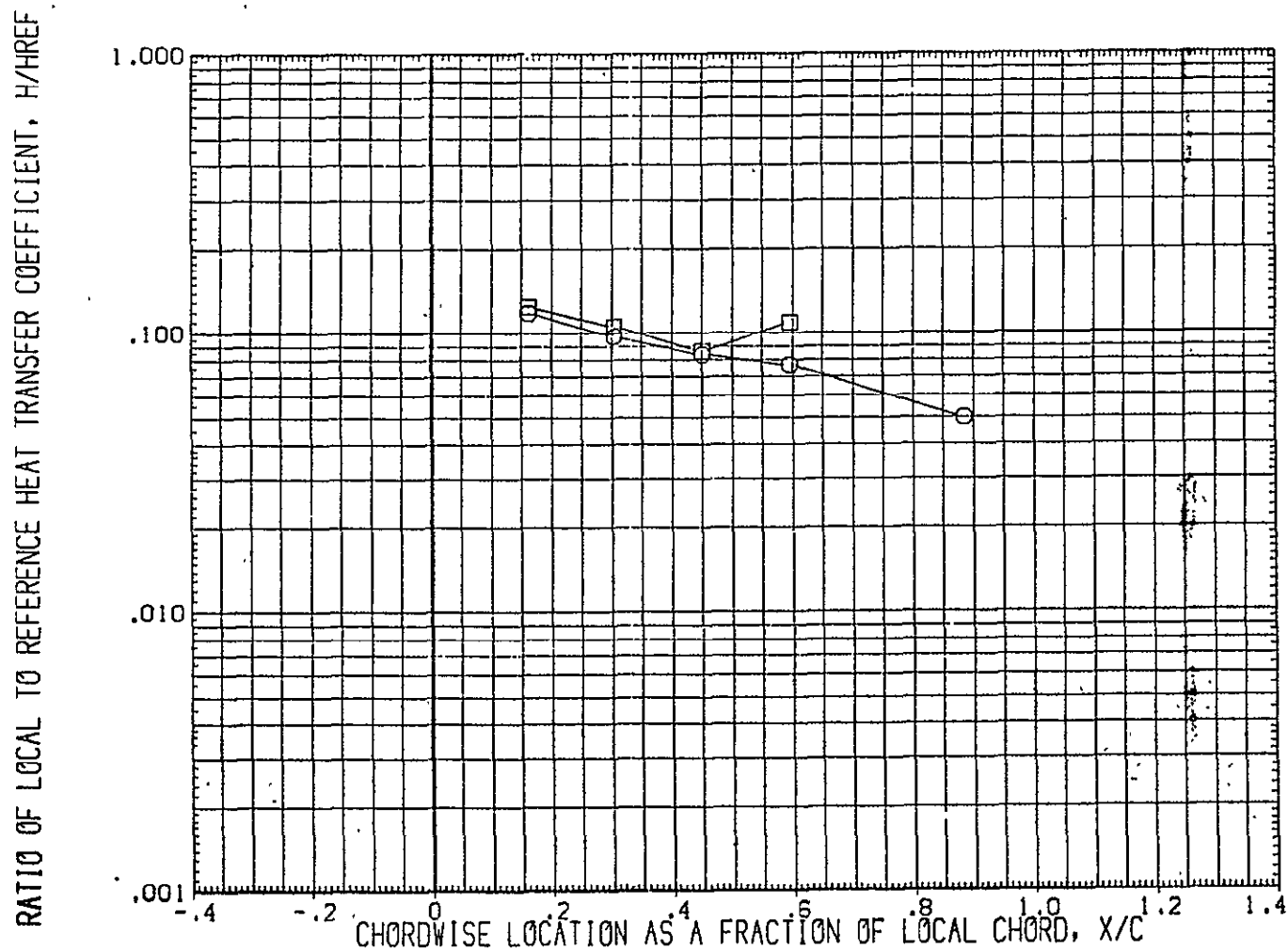


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .850 2Y/B = .250

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WING L.S.	RN/L	ALPHA	BETA
(EUGV10)	OH12/IH21 (CAL MST 173-100) 37 0	WING L.S.	.262	25.000	.000
(JUGV15)	OH12/IH21 (CAL MST 173-100) 37 0	WING L.S.	.955	25.000	.000

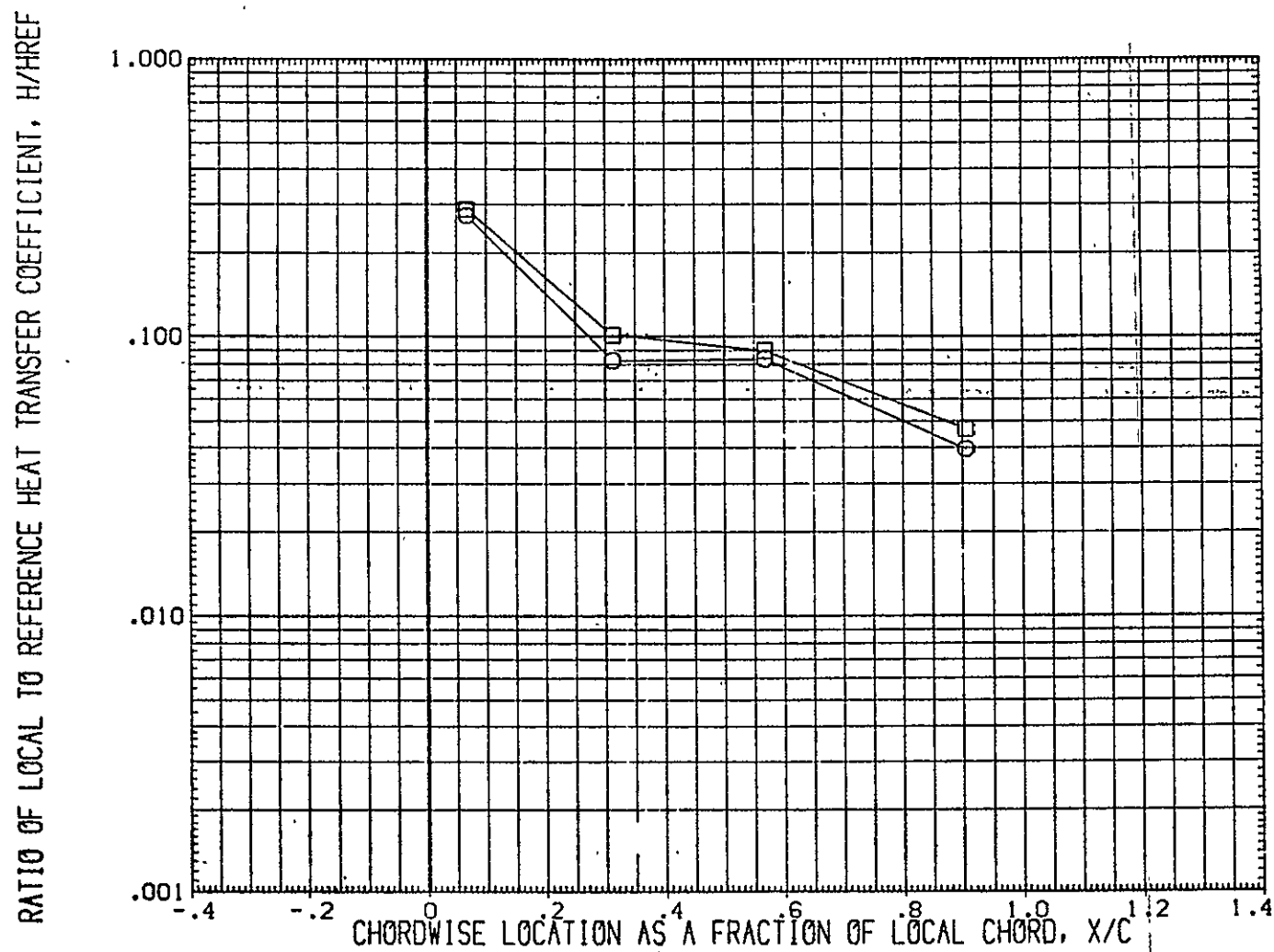


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .850 2Y/B = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.262	25.000	.000
(JUGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.955	25.000	.000

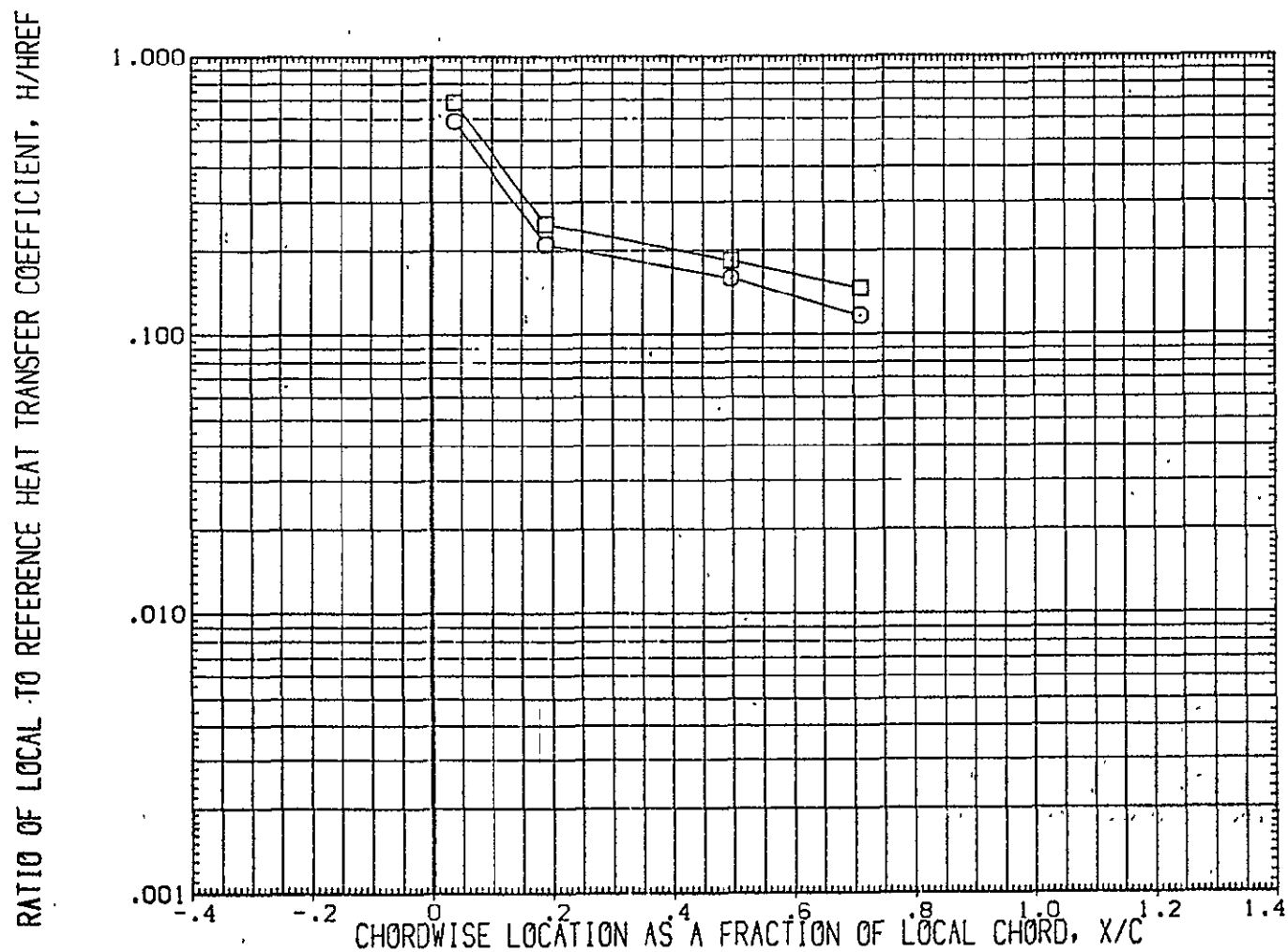


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .850 2Y/B = .500

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW10) □	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S. .262	25.000	.000
(JUGW15) □	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S. .955	25.000	.000

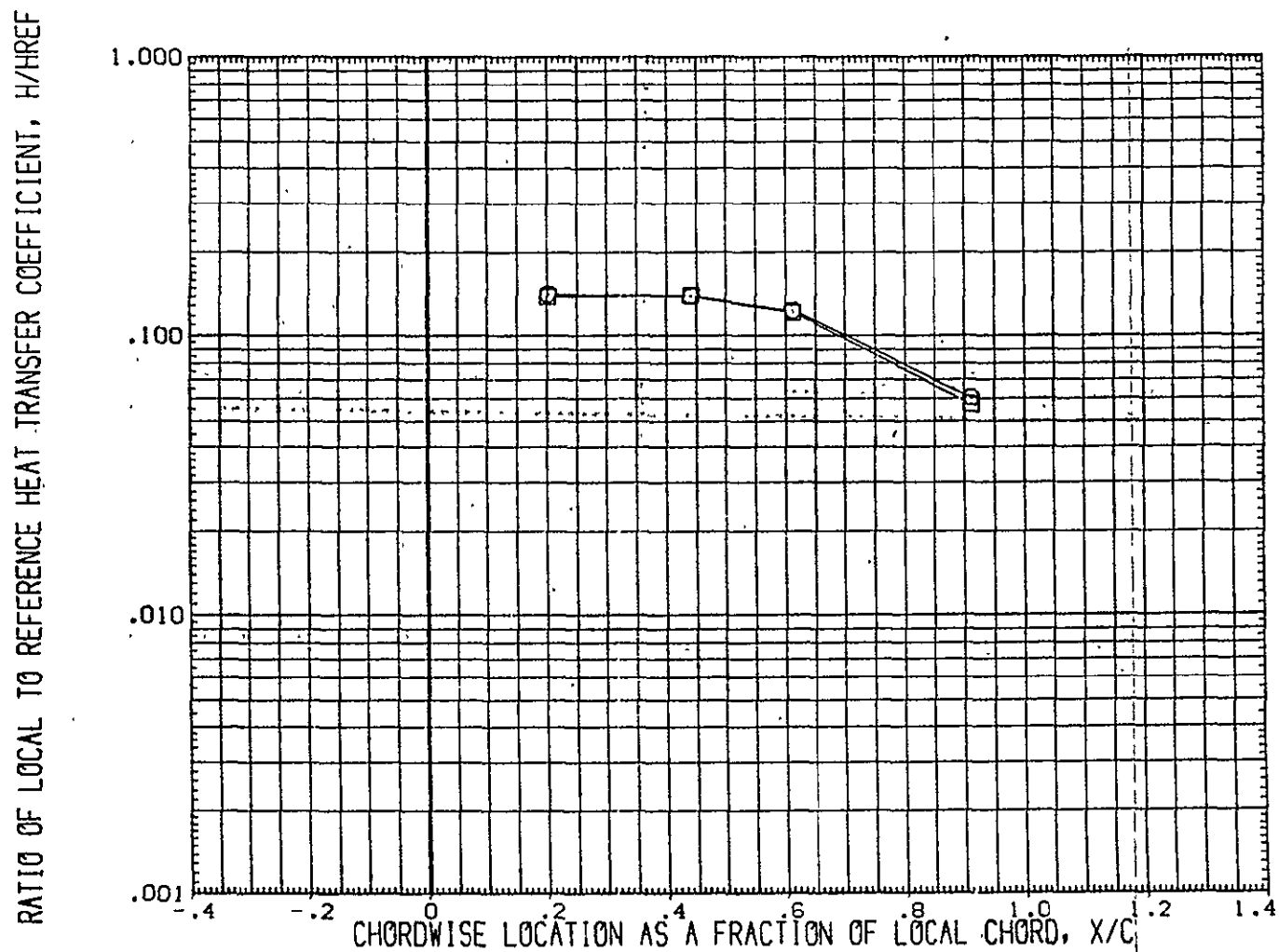


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT = .850 2Y/B = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION		RN/L	ALPHA	BETA
(EUGW10)	OH12/H21 (CAL HST 173-100) 37 0	WING L.S.	.262	25.000	.000
(JUGW15)	OH12/H21 (CAL HST 173-100) 37 0	WING L.S.	.955	25.000	.000

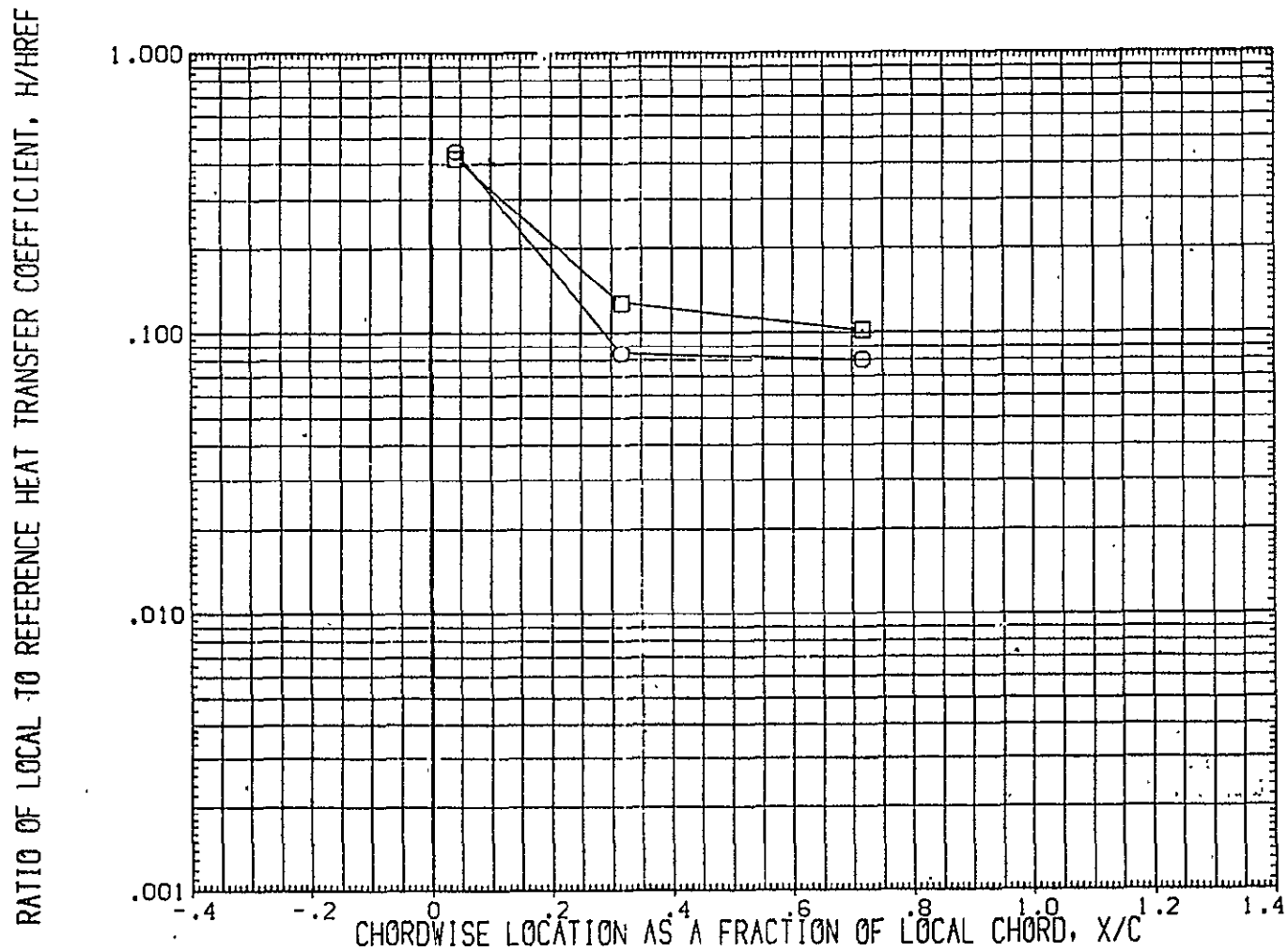


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .850 2Y/B = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION		RN/L	ALPHA	BETA
(EUGW10) □	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.262	25.000	.000
(JUGW15) □	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.955	25.000	.000

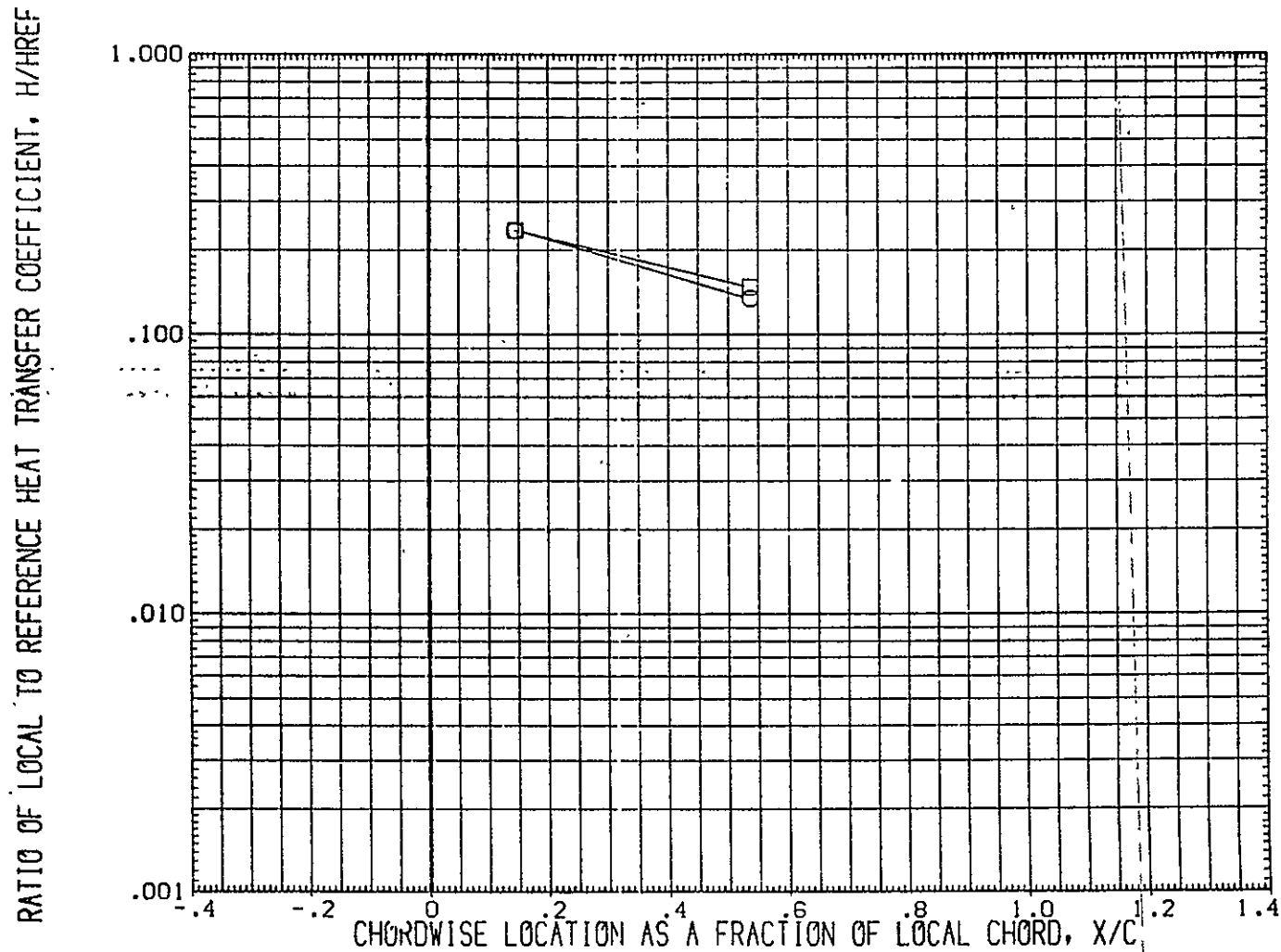


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .850 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	RN/L	ALPHA	BETA
(EUGW10)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.262	25.000	.000
(JUGW15)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.955	25.000	.000

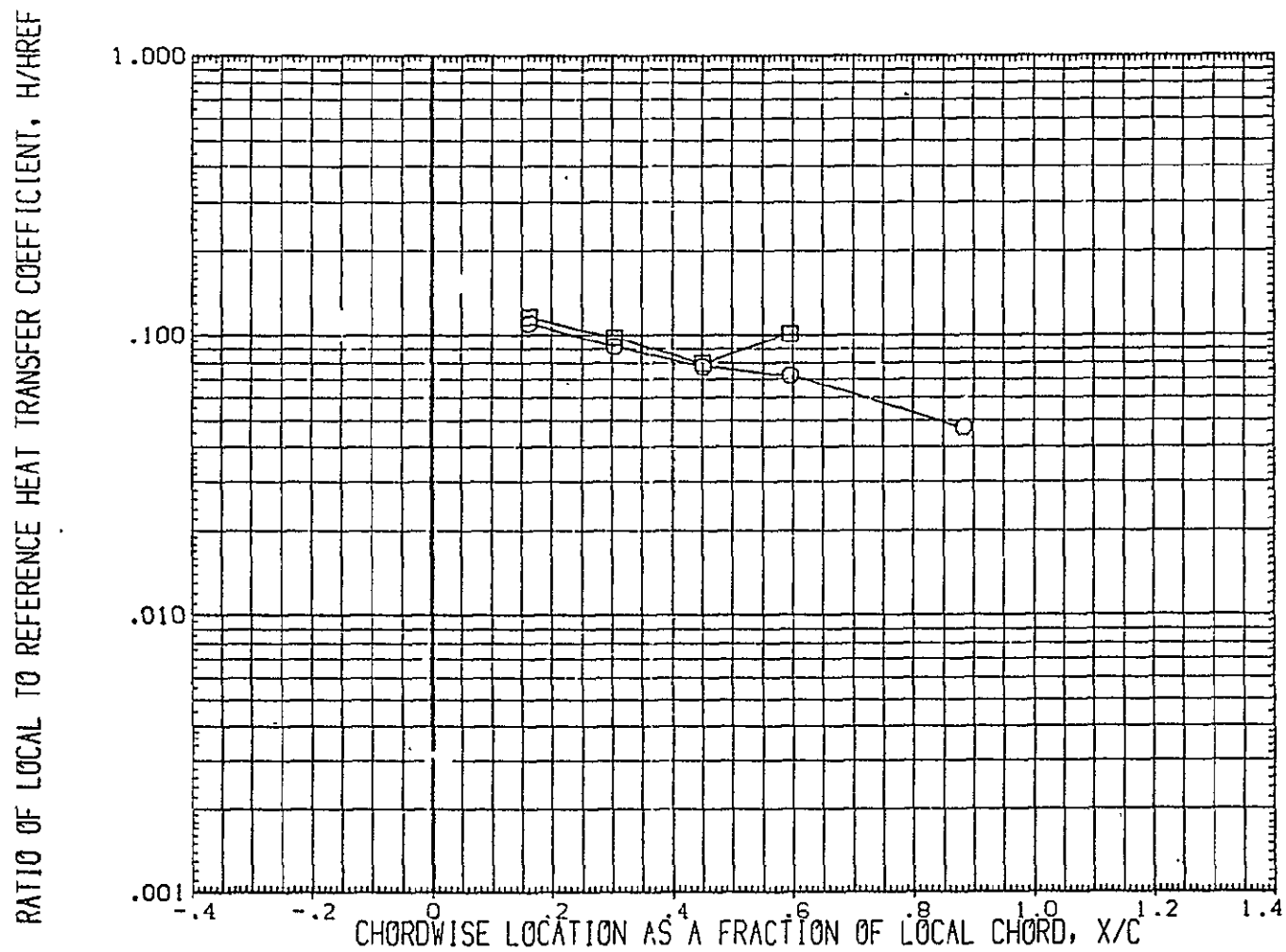


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .900 2Y/B = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(EUGW10)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.262	25.000	.000
(JUGW15)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.955	25.000	.000

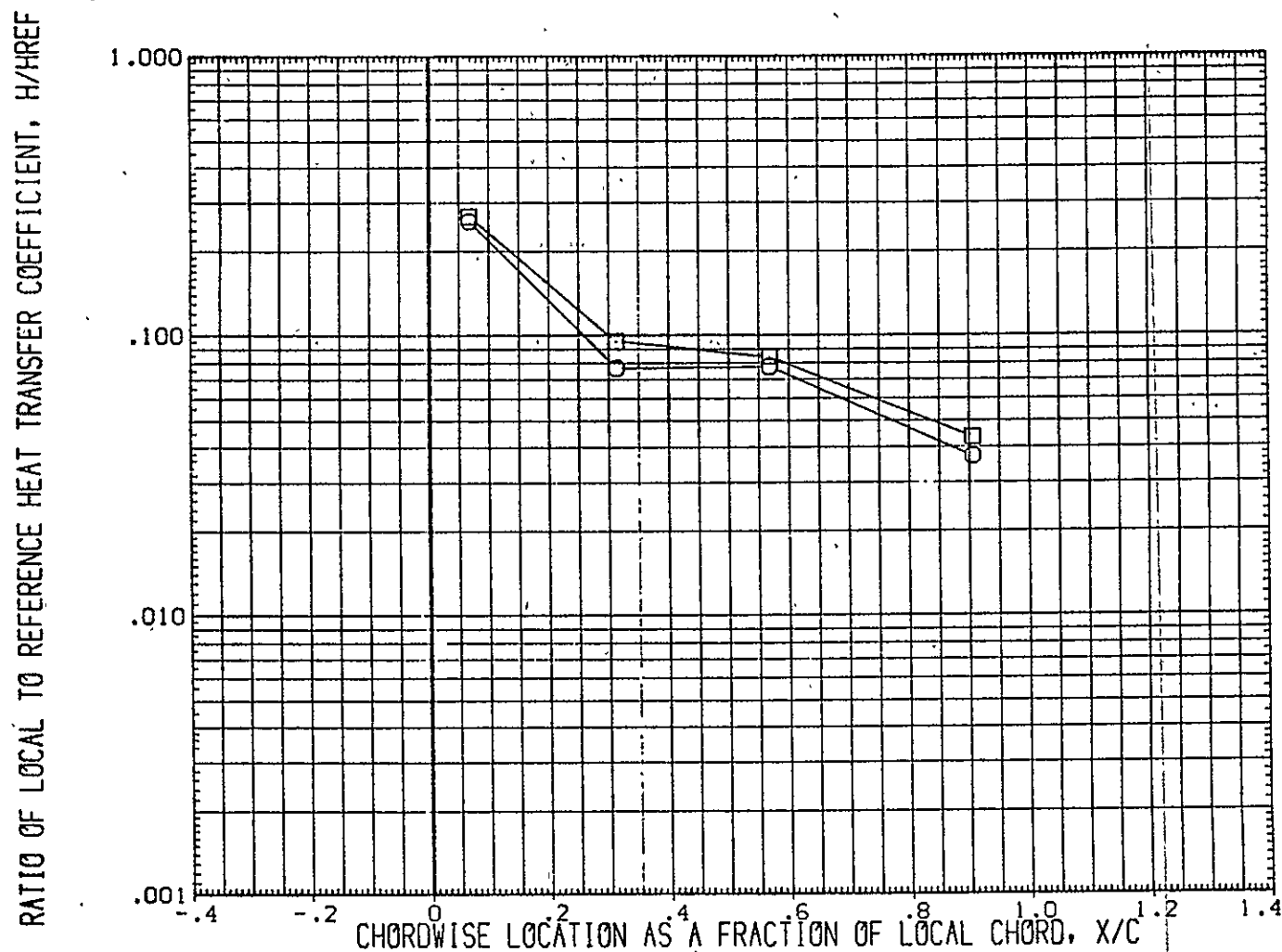


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25
MACH = 12.100 HAW/HT= .900 2Y/B = .400 PAGE 848

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW10)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.262	25.000	.000
(JUGW15)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.955	25.000	.000

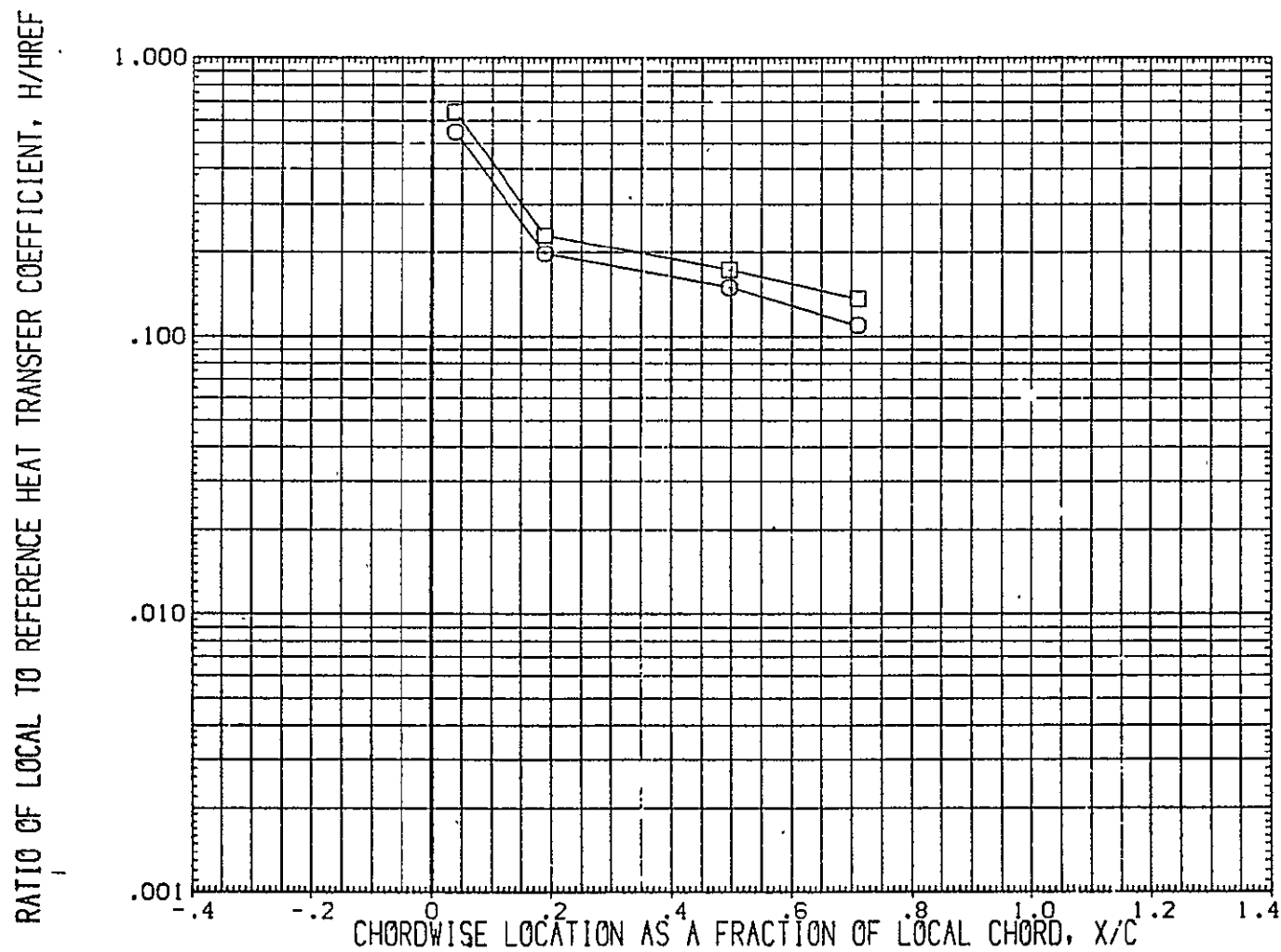


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .900 2Y/B = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.262	25.000	.000
(JUGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.955	25.000	.000

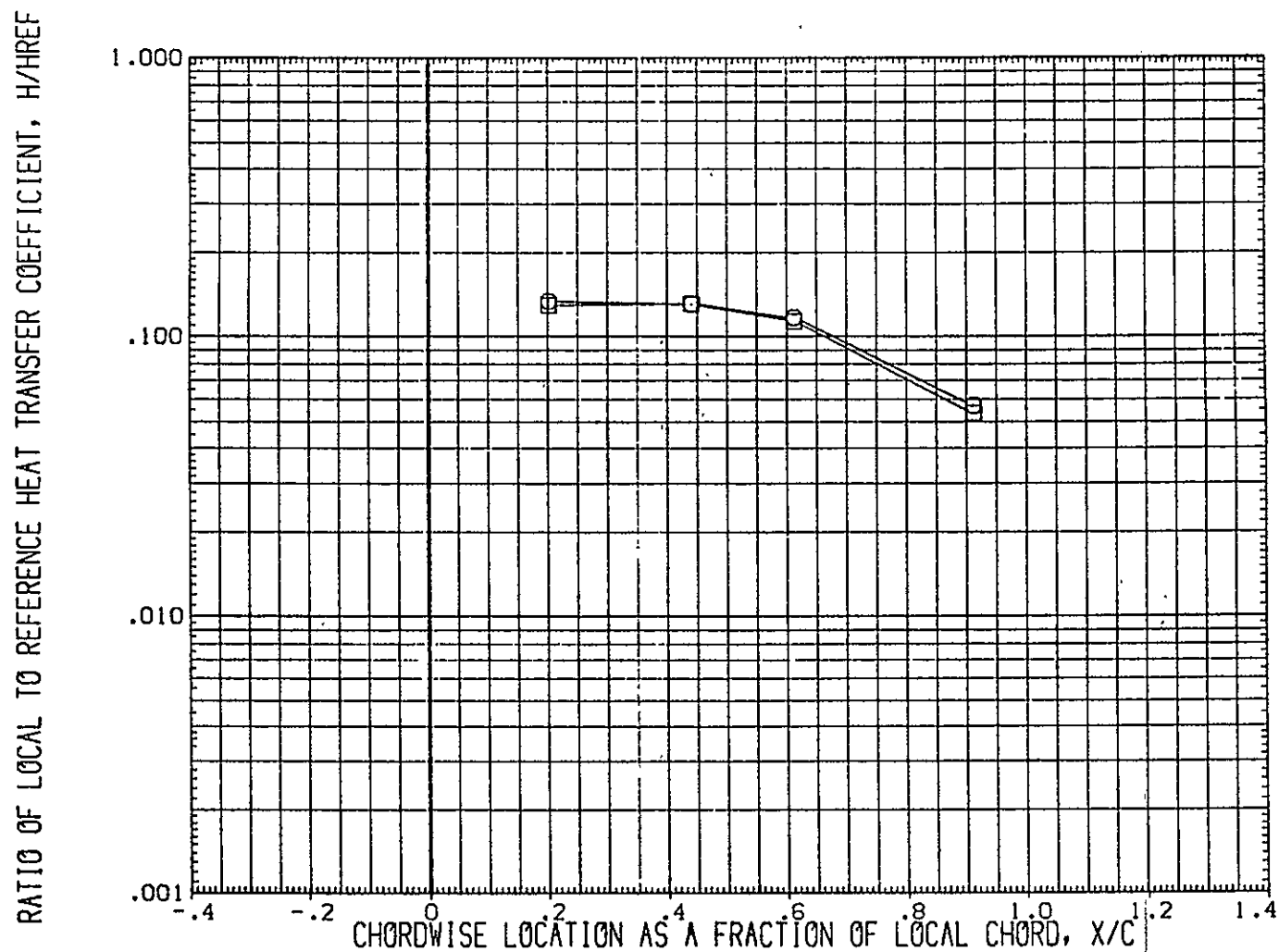


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .900 2Y/B = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(EUGW10)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.262	25.000	.000
(JUGW15)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.955	25.000	.000

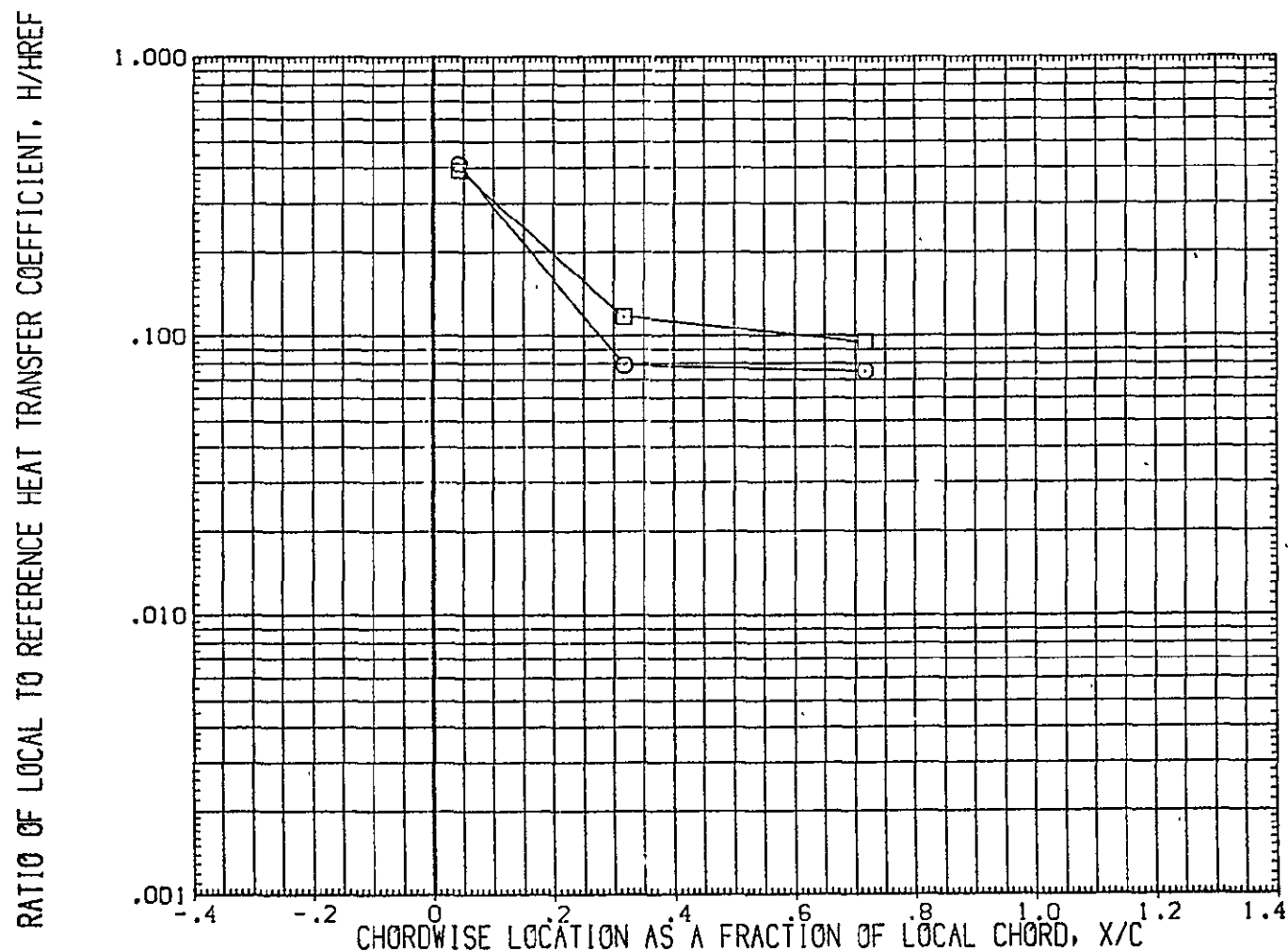




FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .900 2Y/B = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW10) 	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.262	25.000	.000
(JUGW15) 	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.955	25.000	.000

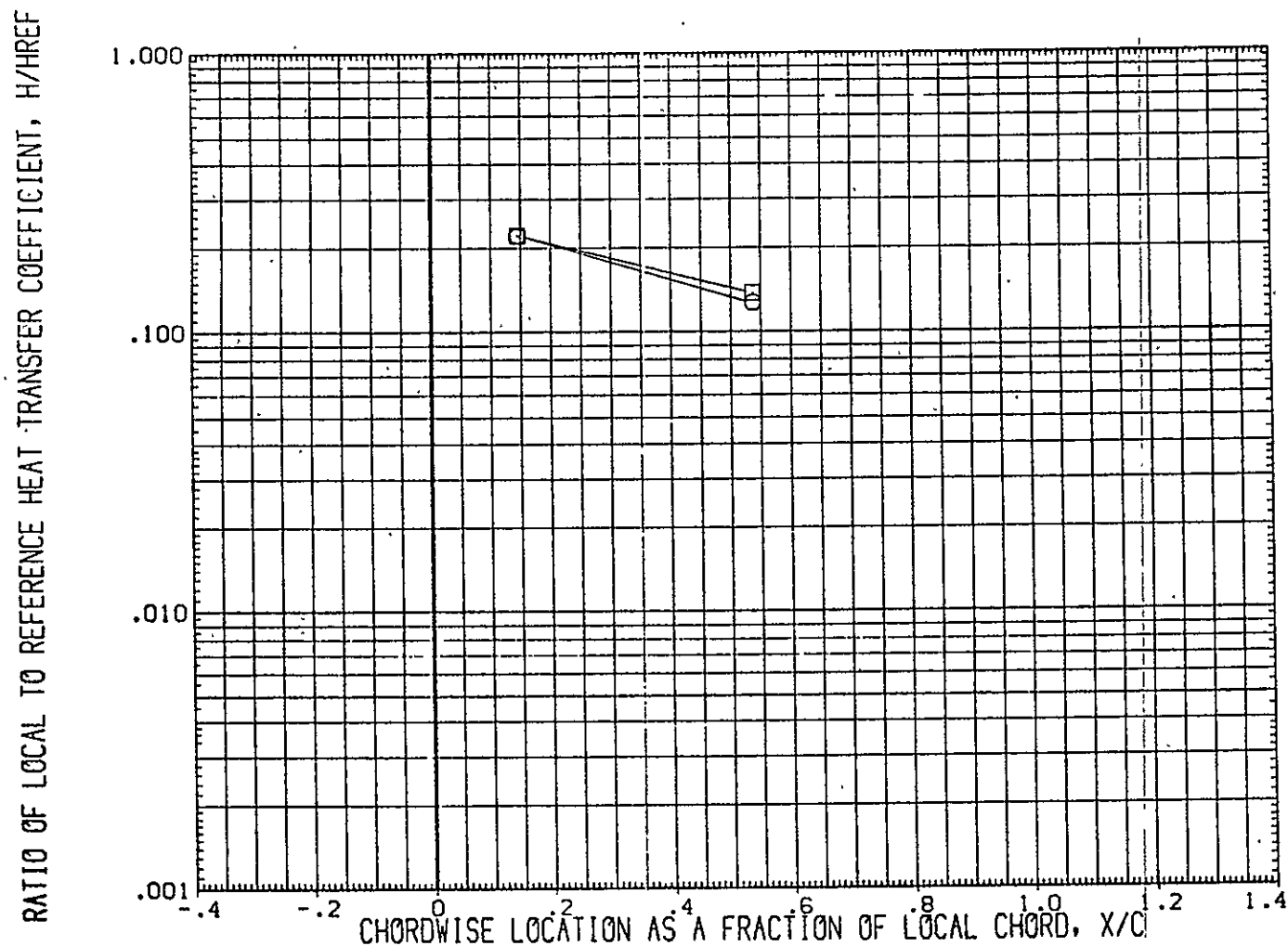


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .900 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW10)	OH12/H21 (CAL MST 173-100) 37 0 WING L.S.	.262	25.000	.000
(JUGW15)	OH12/H21 (CAL MST 173-100) 37 0 WING L.S.	.955	.000	

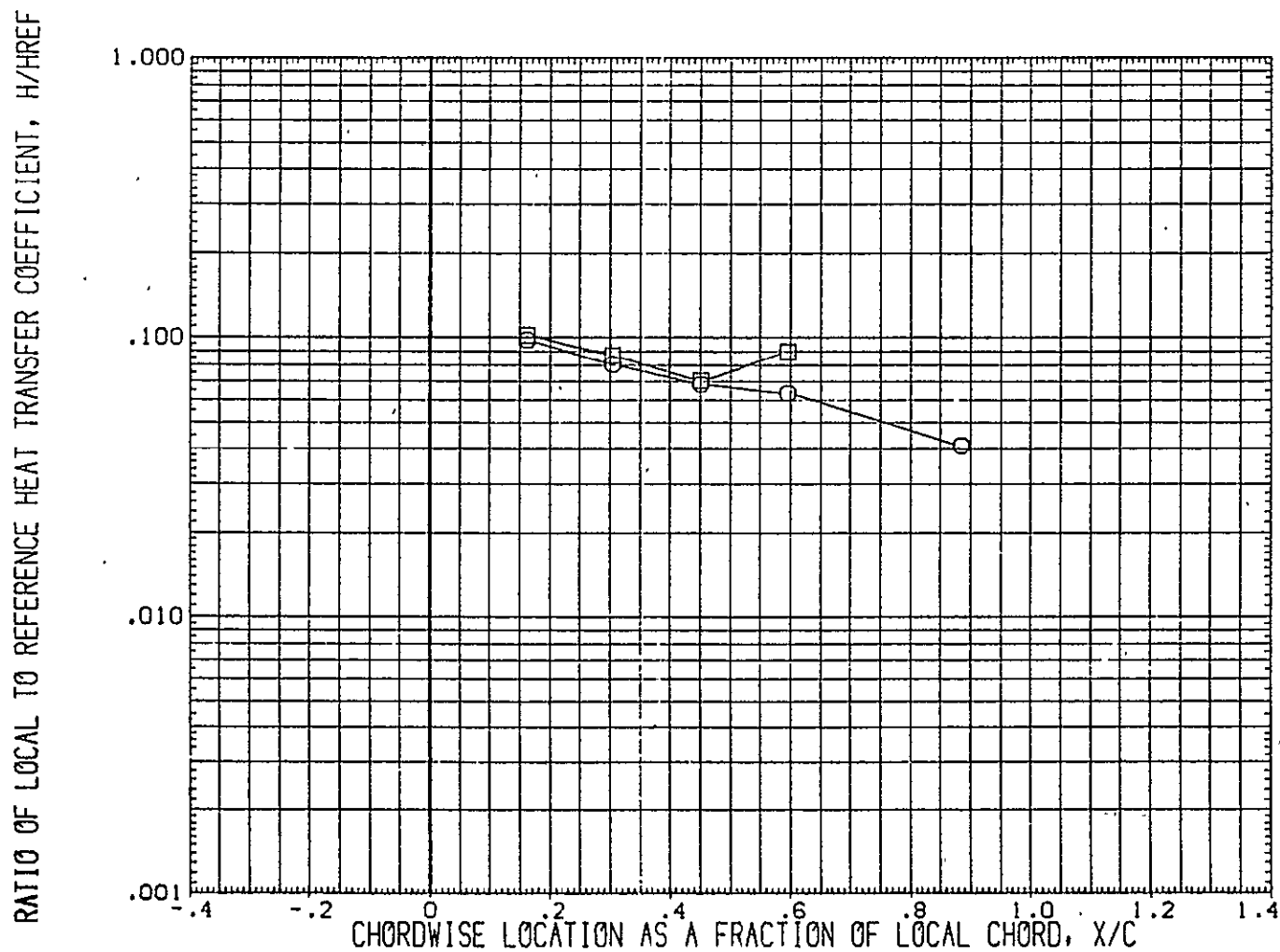


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= 1.000 2Y/B = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW10) ○	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.262	25.000	.000
(JUGW15) □	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.955	25.000	.000

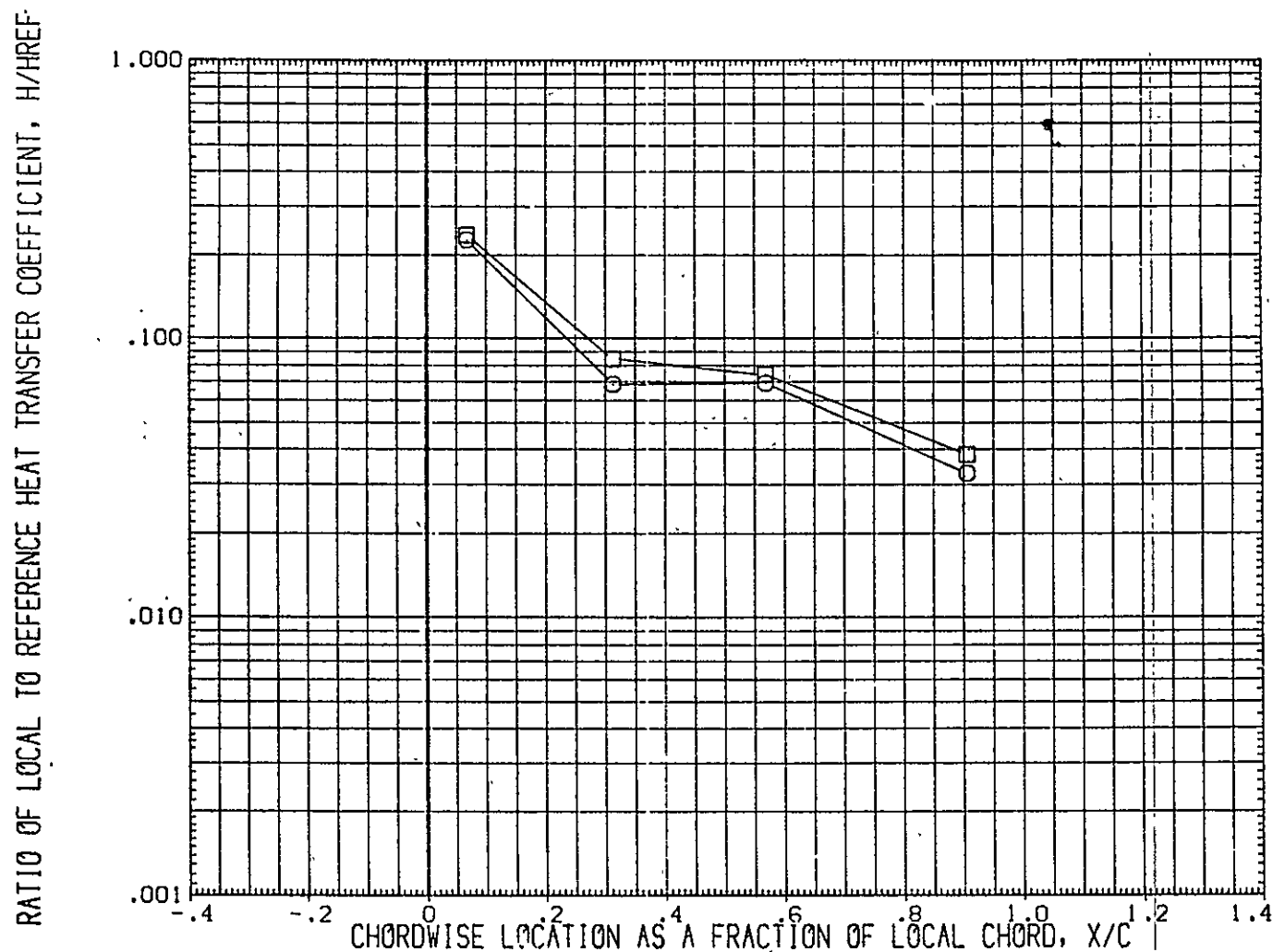


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25
MACH = 12.100 HAW/HT= 1.000 2Y/B = .400 PAGE 854

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW10)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S. .262	25.000	.000
(JUGW15)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S. .955	25.000	.000

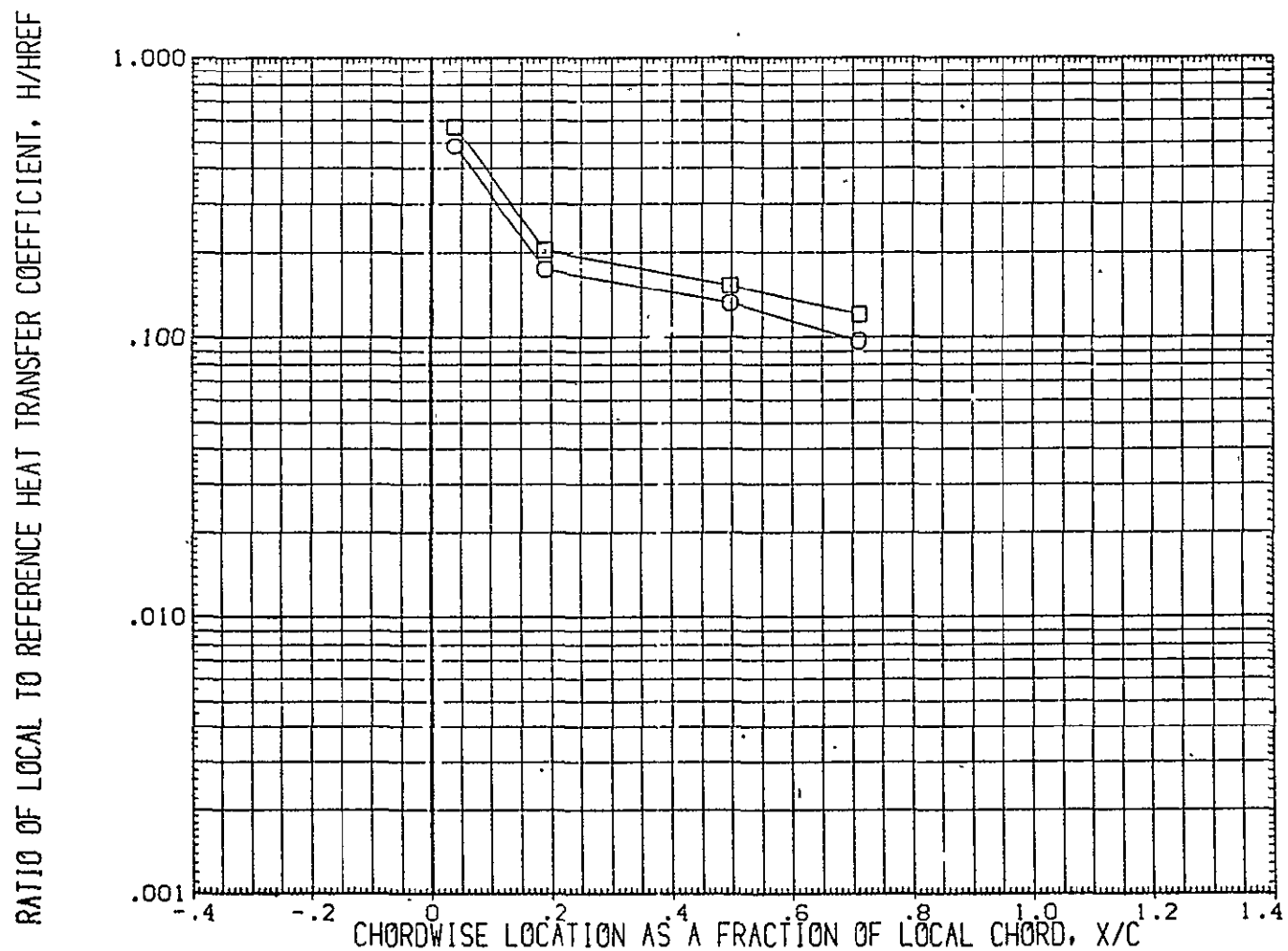


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT = 1.000 2Y/B = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW10)	CH12/1421 (CAL HST 173-100) 37 0 WING L.S.	.262	25.000	.000
(JUGW15)	CH12/1421 (CAL HST 173-100) 37 0 WING L.S.	.955	25.000	.000

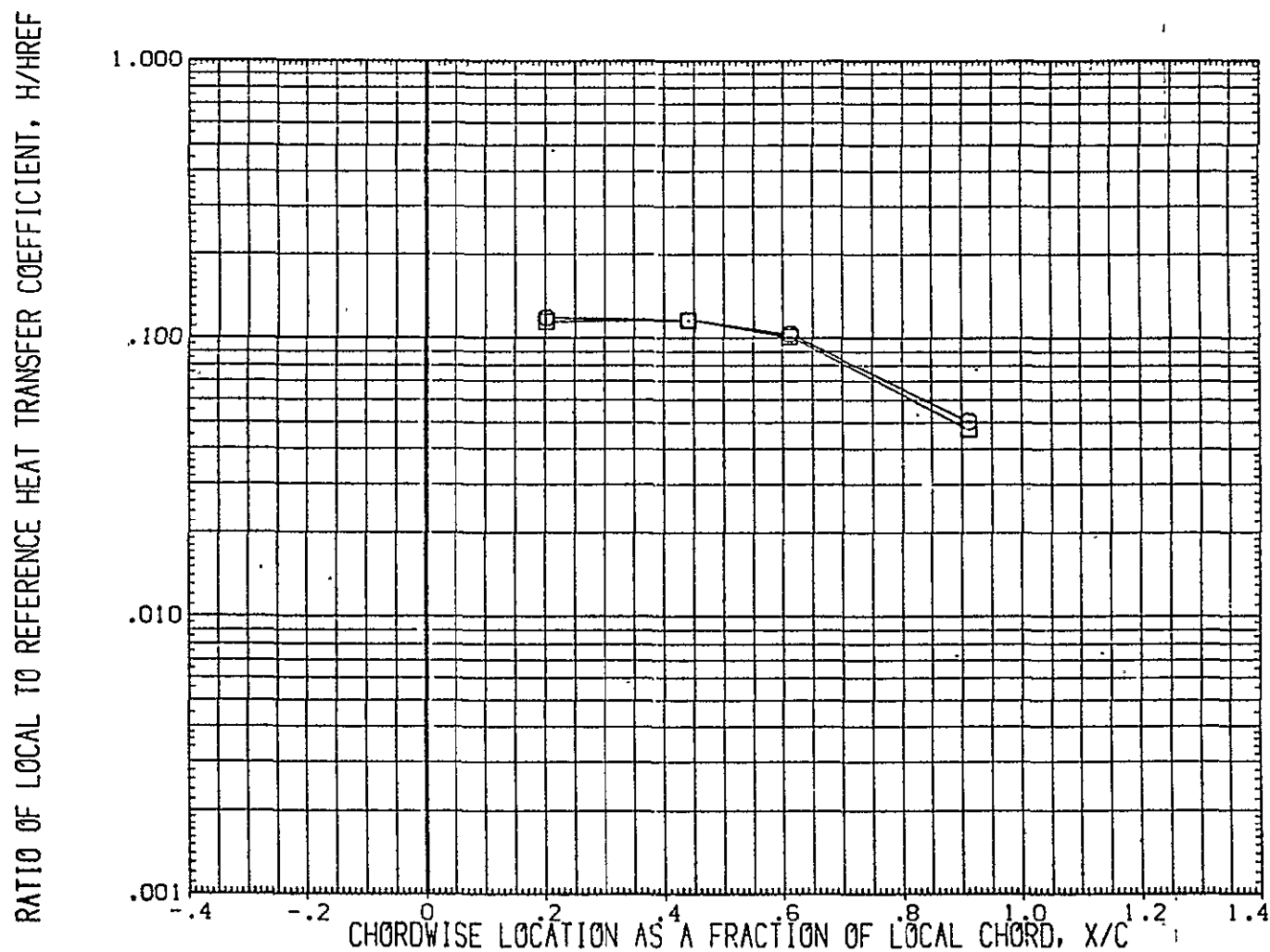


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25
MACH = 12.100 HAW/HT= 1.000 2Y/B = .600

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EJGV10)	CH12/H21 (CAL HST 173-100) 37 0 WING L.S.	.262	25.000	.000
(JUGV15)	CH12/H21 (CAL HST 173-100) 37 0 WING L.S.	.955	25.000	.000

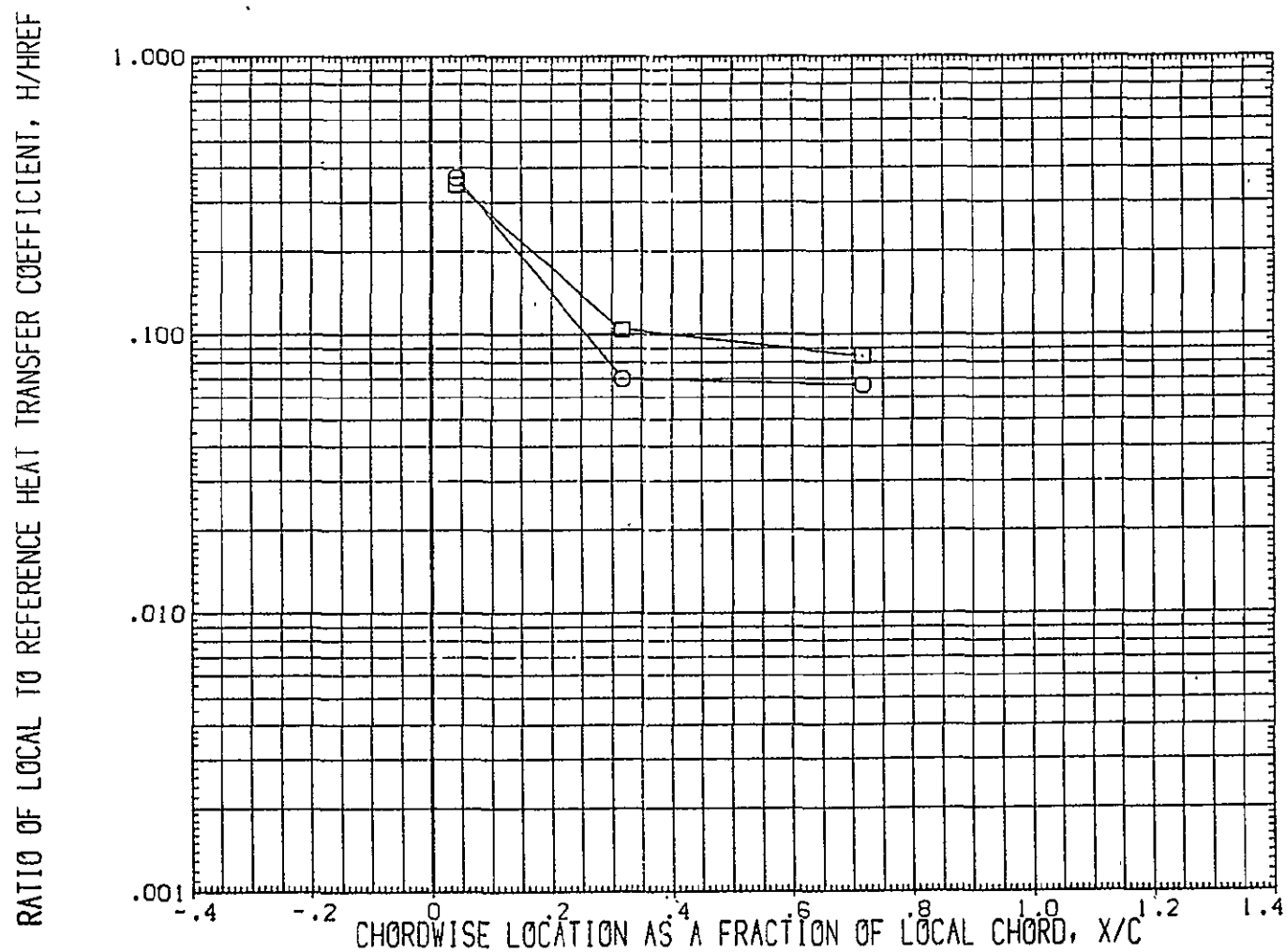


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= 1.000 2Y/B = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGV10)	0H12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.252	25.000	.000
(JUGV15)	0H12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.955	25.000	.000

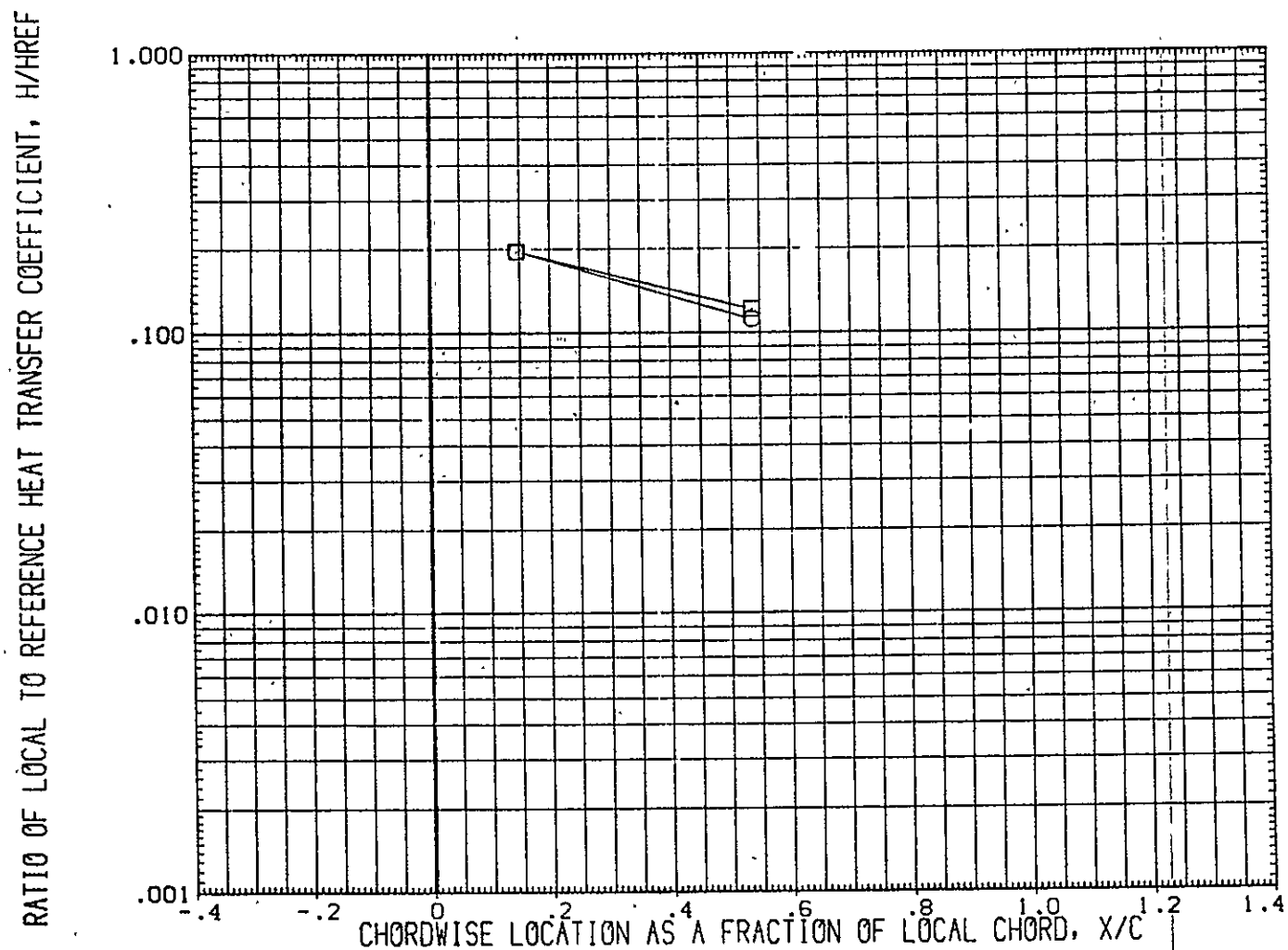


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= 1.000 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.045	25.000	.000
(TUGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.238	25.000	.000

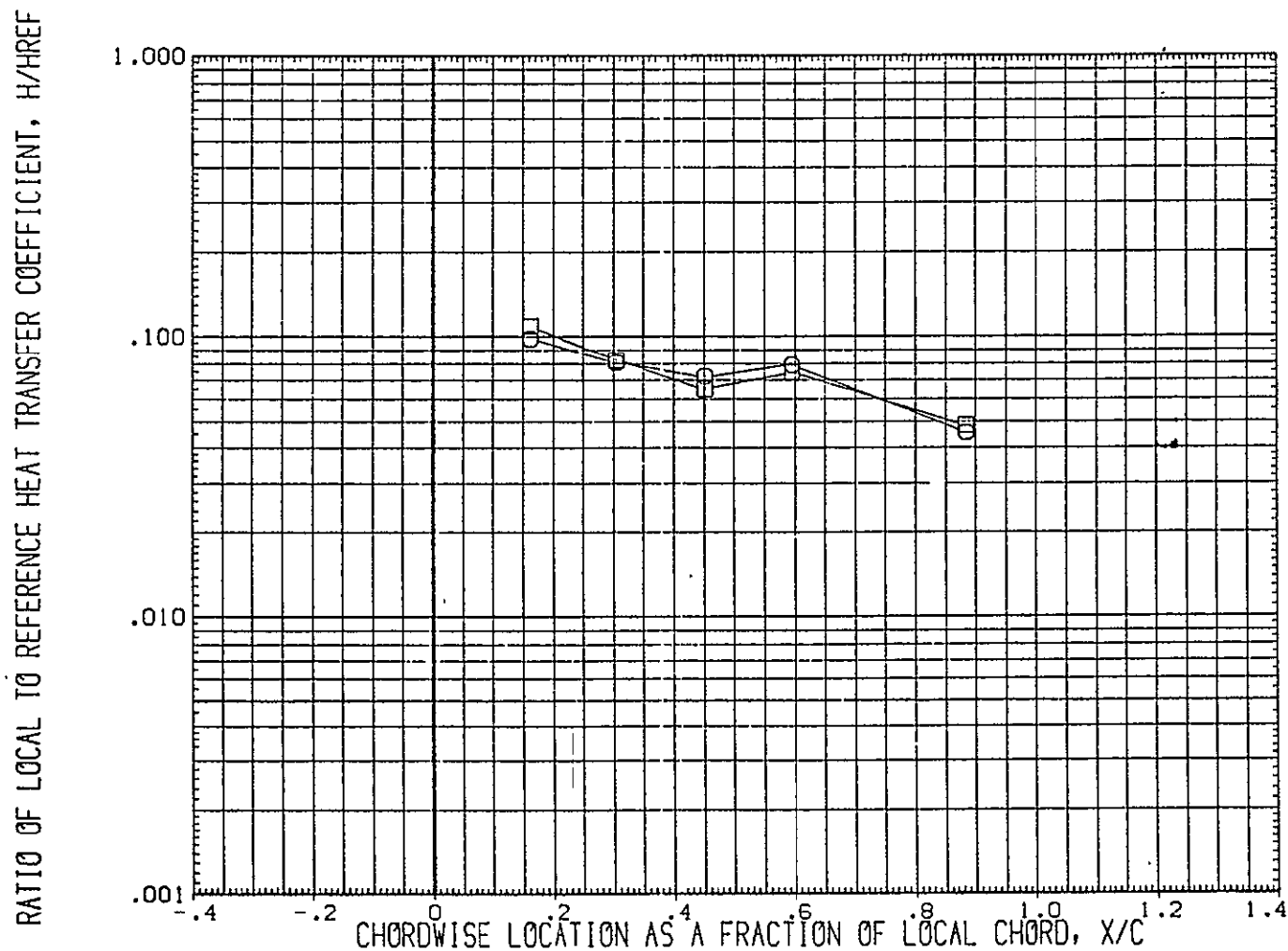


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= .850 2Y/B = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FURW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.045	25.000	.000
(JGGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.238	25.000	.000

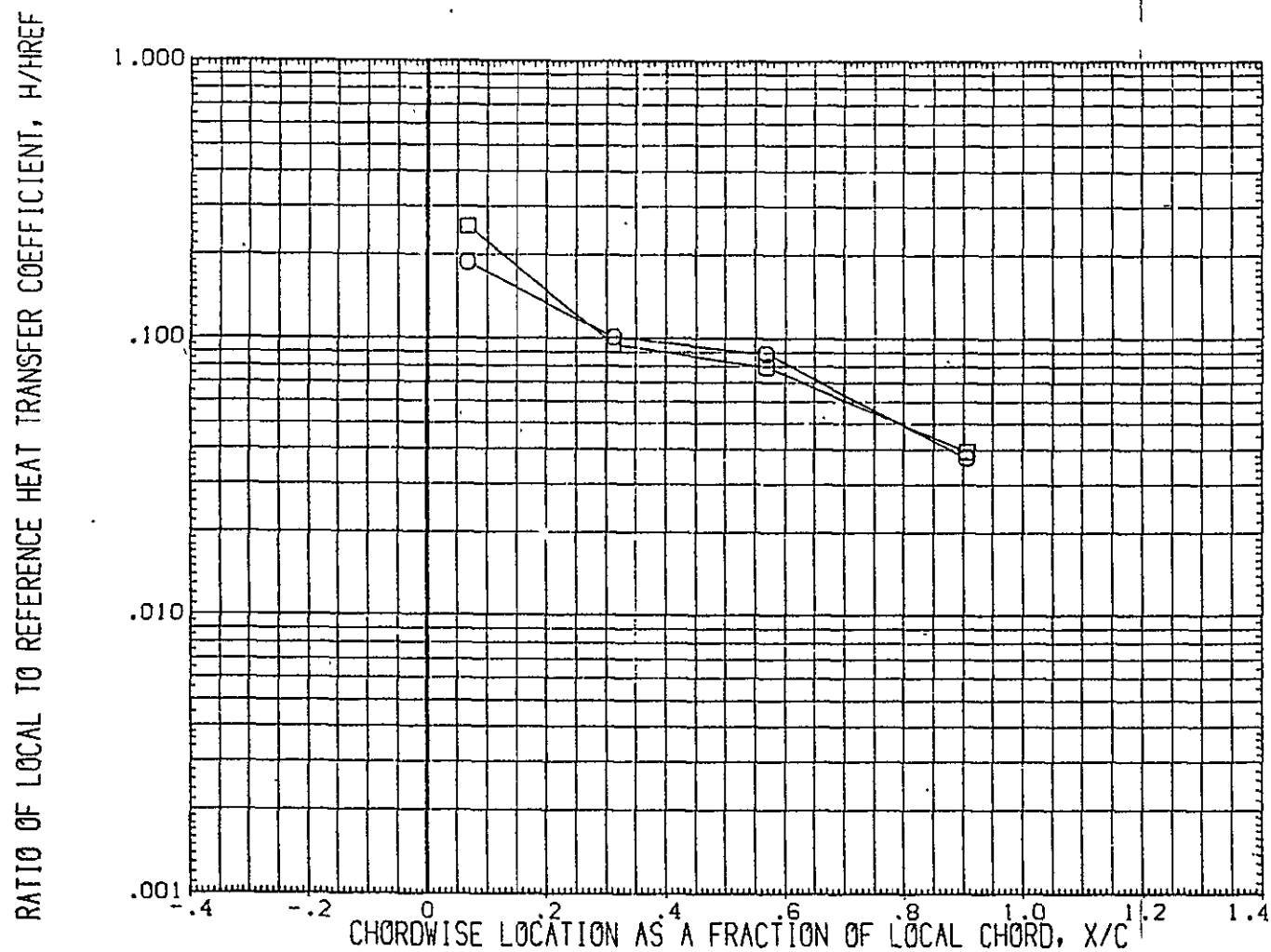


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25
MACH = 15.880 HAW/HT= .850 2Y/B = .400 PAGE 860

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WING L.S.	REYN/L	ALPHA	BETA
(FUGW10)	OW12/1421 (CAL HST 173-100) 37 0	WING L.S.	.045	25.000	.000
(IUGW15)	OW12/1421 (CAL HST 173-100) 37 0	WING L.S.	.238	25.000	.000

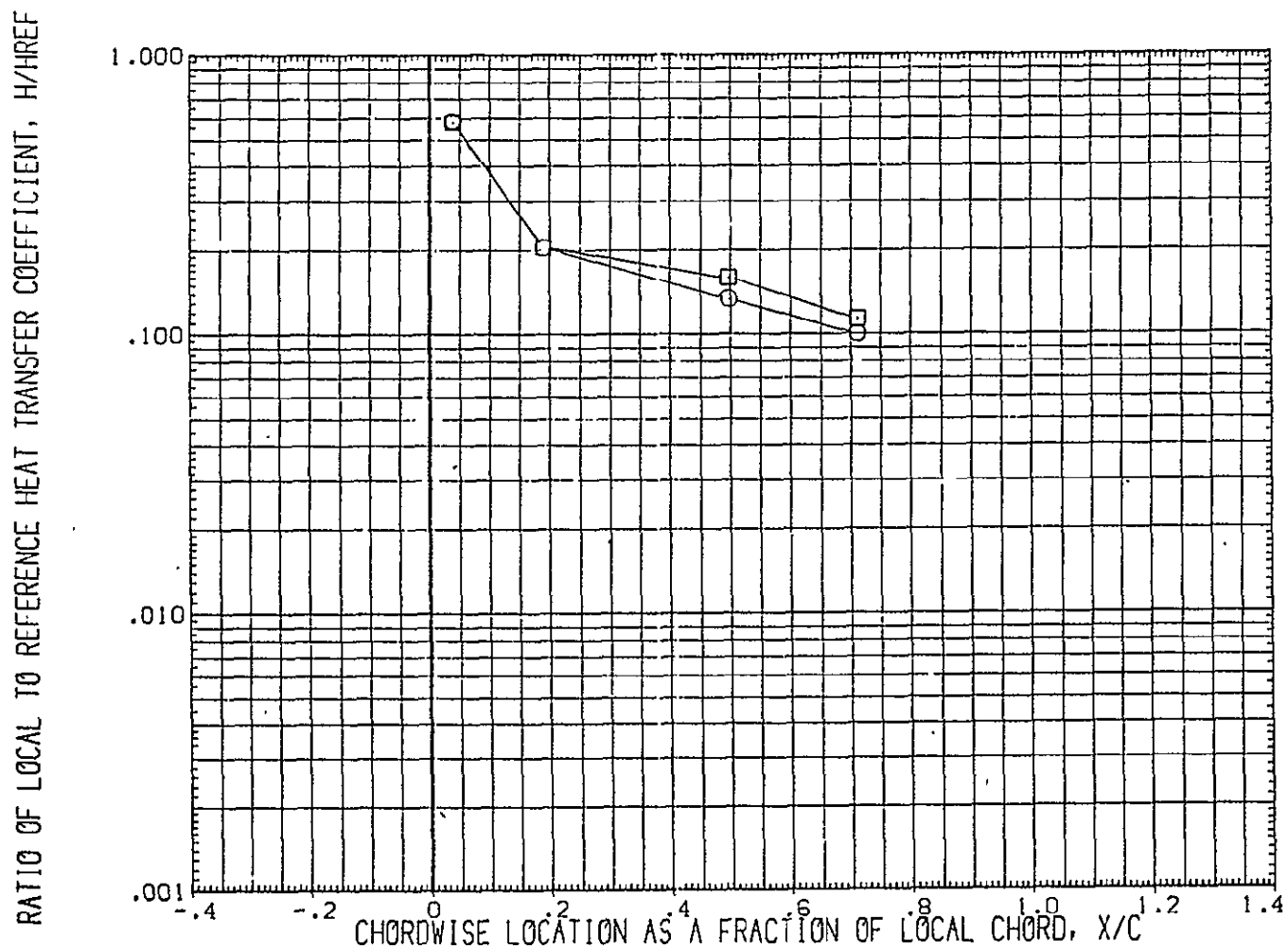


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= .850 2Y/B = .500

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA	
(FUGW10)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.045	25.600	.000
(FUGW13)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.238	25.000	.000

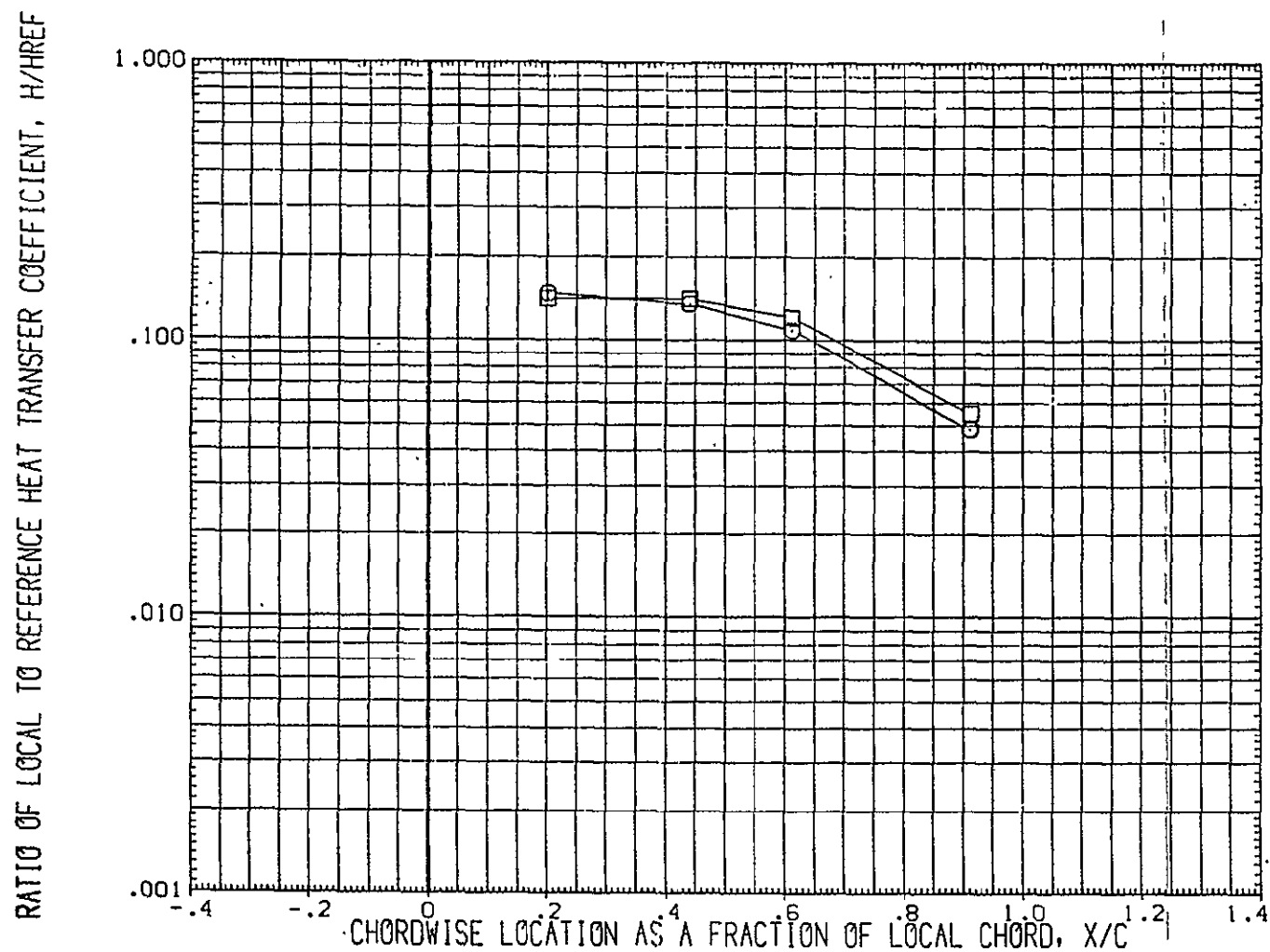


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25
MACH = 15.880 HAW/HT= .850 2Y/B = .600

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGW10) □	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.045	25.000	.000
(1UGW15) □	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.238	25.000	.000

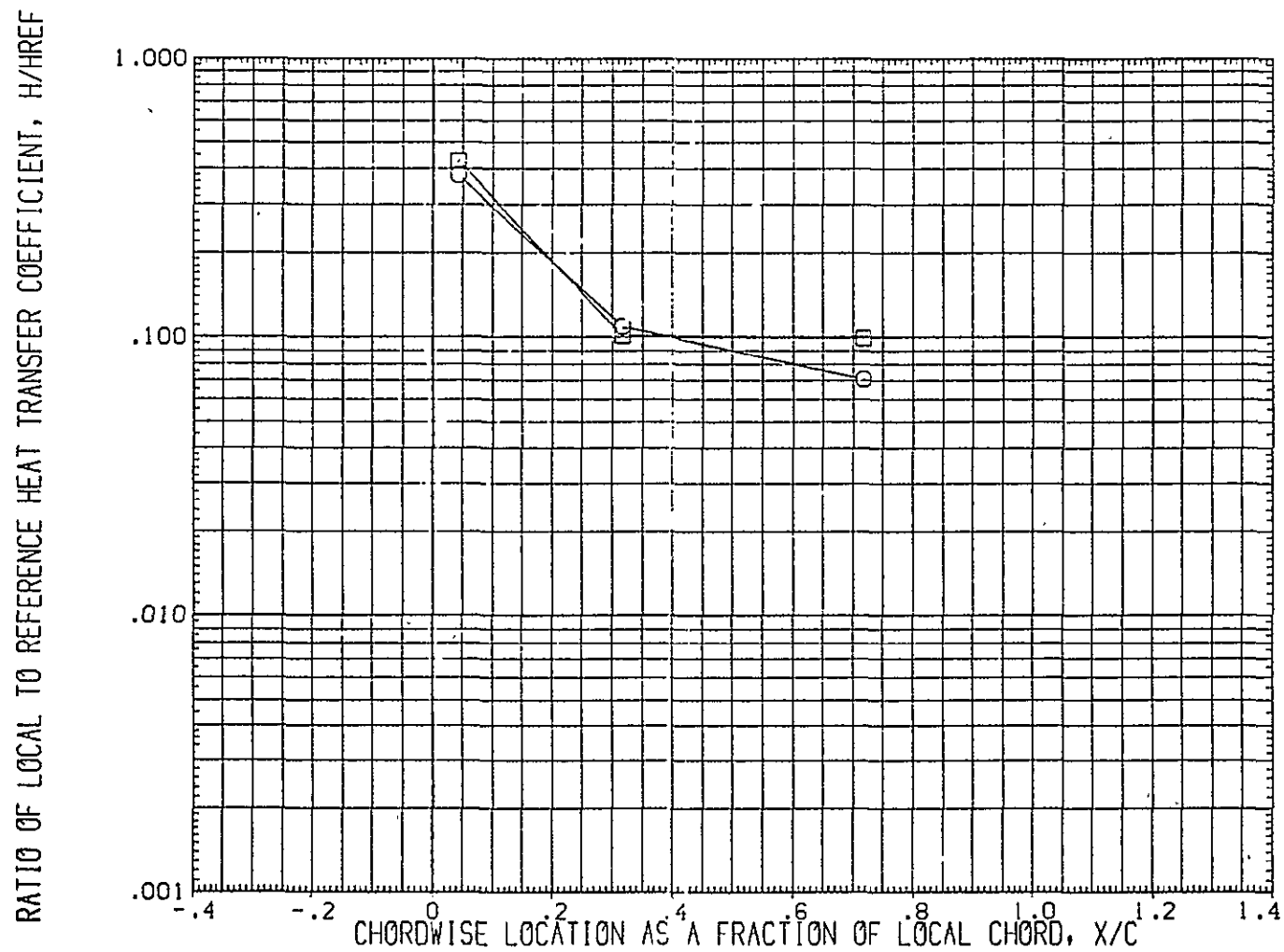


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT = .850 $2Y/B$ = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.045	25.000	.000
(1UGW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.238	25.000	.000

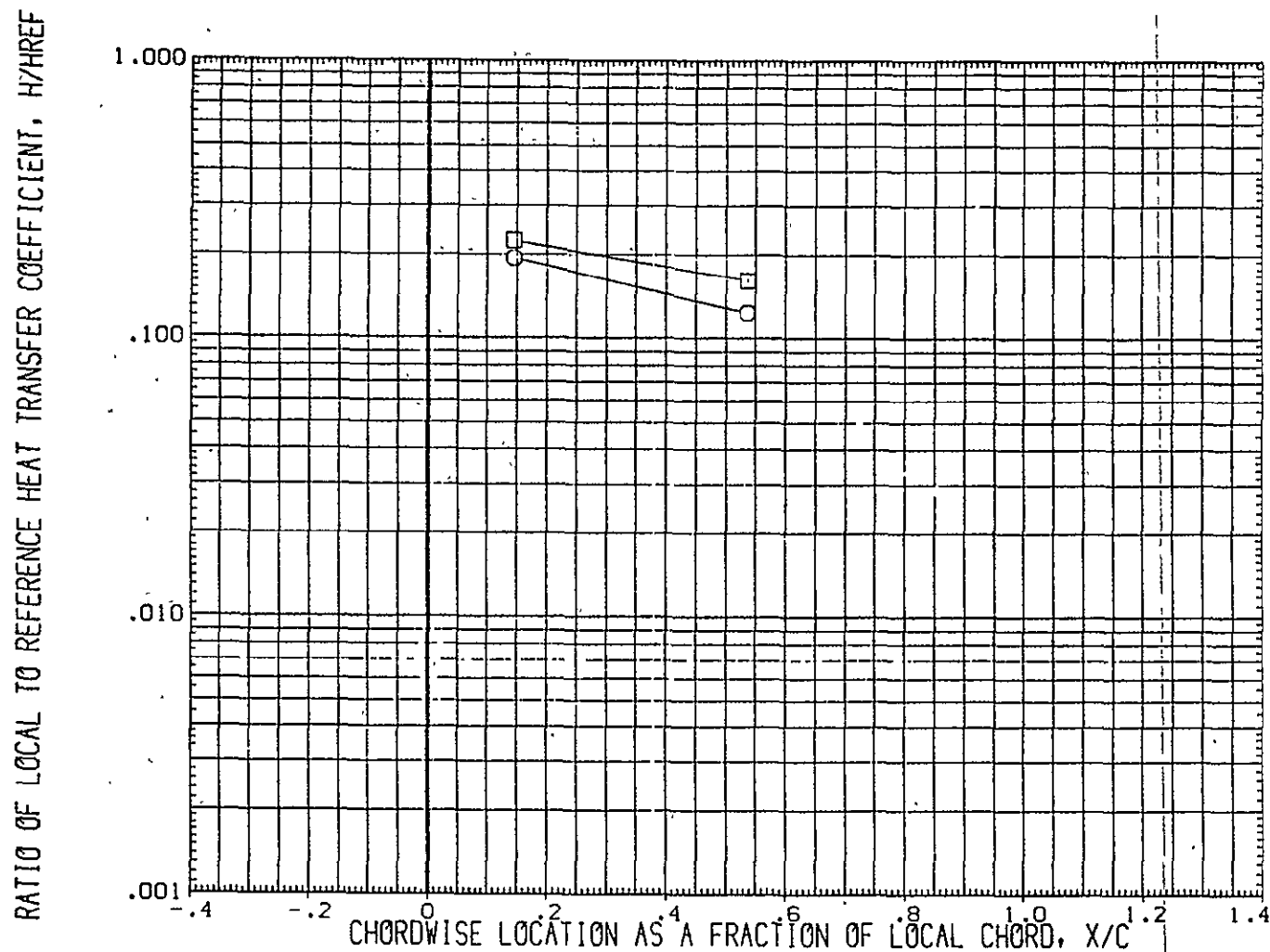


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= .850 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION		RM/L	ALPHA	BETA	
(FUGW10)	OH12/1H21 (CAL 45° 173-100)	37 0	WING L.S.	.045	25.000	.000
(1UGW15)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.238	25.000	.000

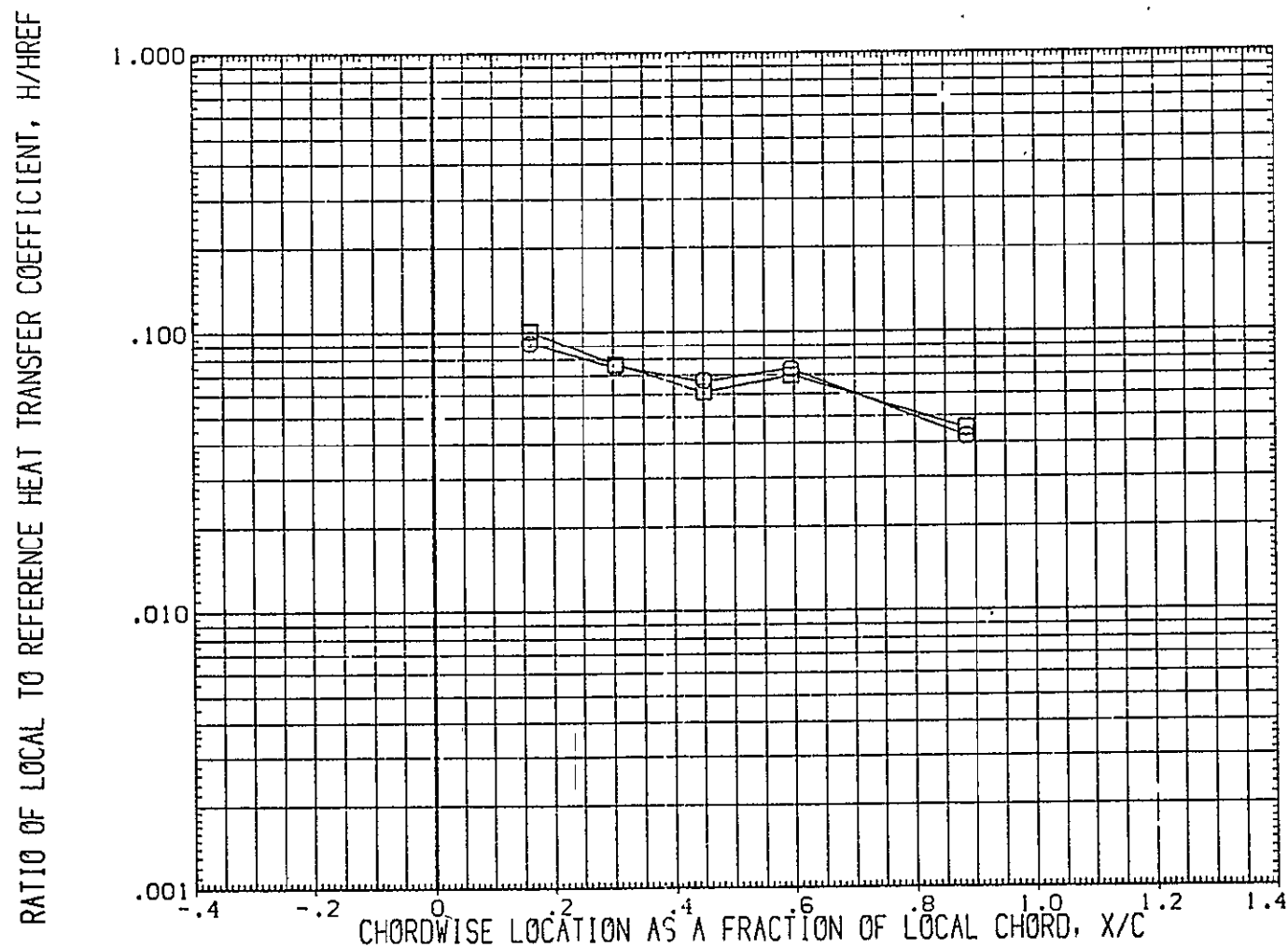


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= .900 2Y/B = .250

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	37 9	WING L.S.	PN/L	ALPHA	BETA
(FUGW10)	○	OH12/1H21 (CAL HST 173-100)	37 9	WING L.S.	.045	25.000	.000
(FUGW15)	□	OH12/1H21 (CAL HST 173-100)	37 9	WING L.S.	.238	25.000	.000

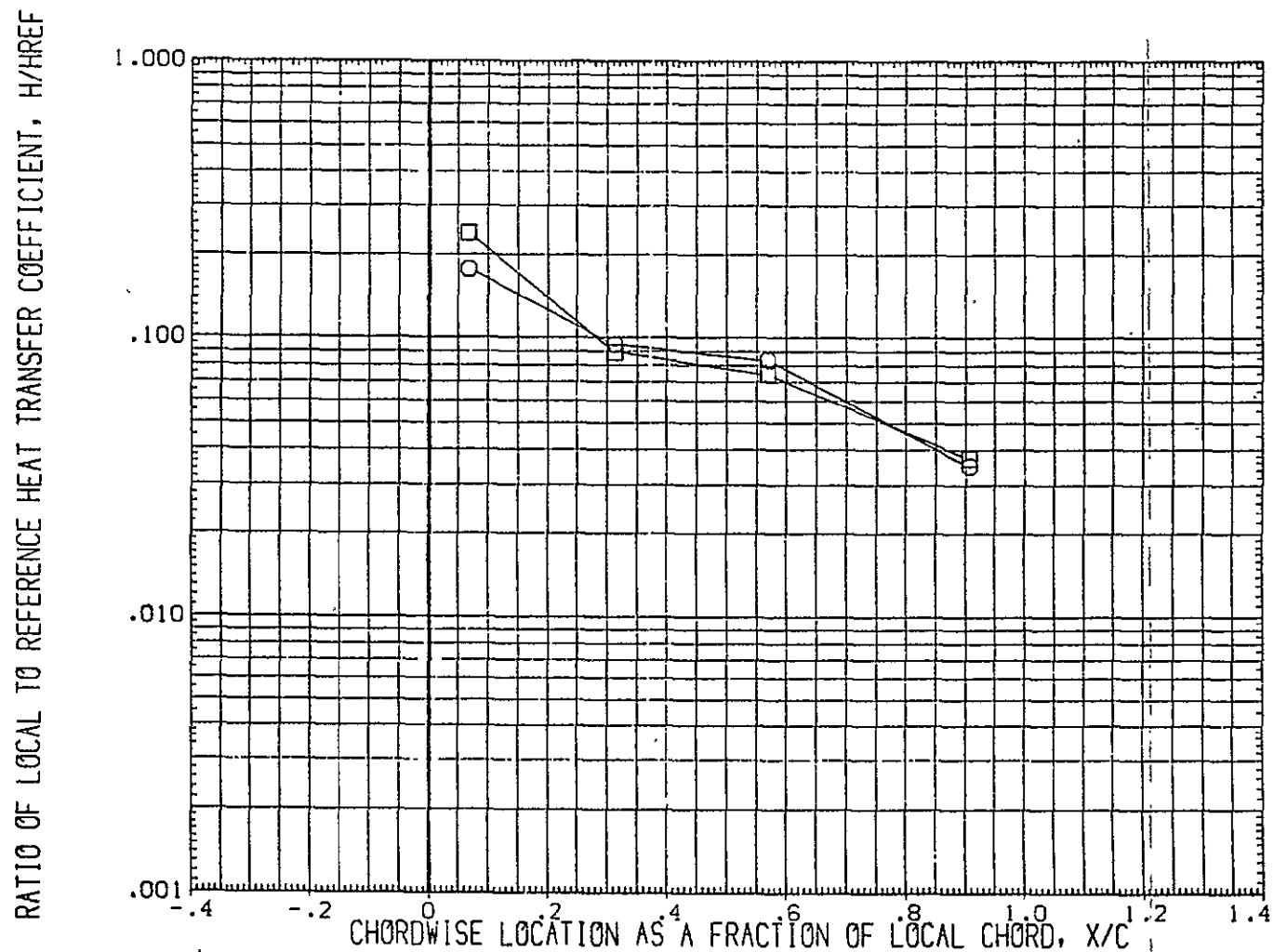


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25
MACH = 15.880 HAW/HT= .900 2Y/B = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGW10)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.045	25.000	.000
(1UGW15)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.238	25.000	.000

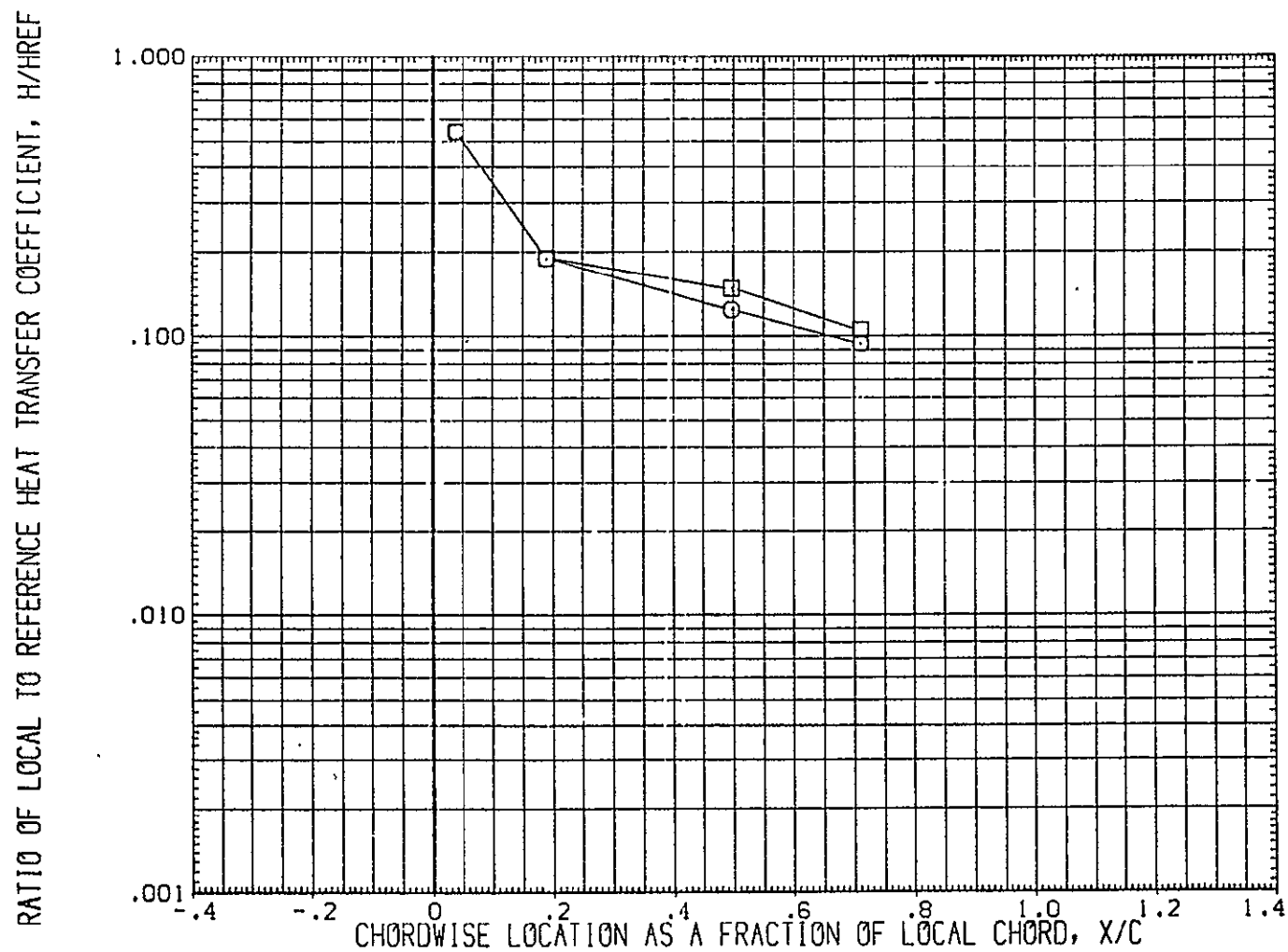


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= .900 2Y/B = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DN/L	ALPHA	BETA
(FUGW10)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.045	25.000	.030
(1USW15)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.238	25.000	.000

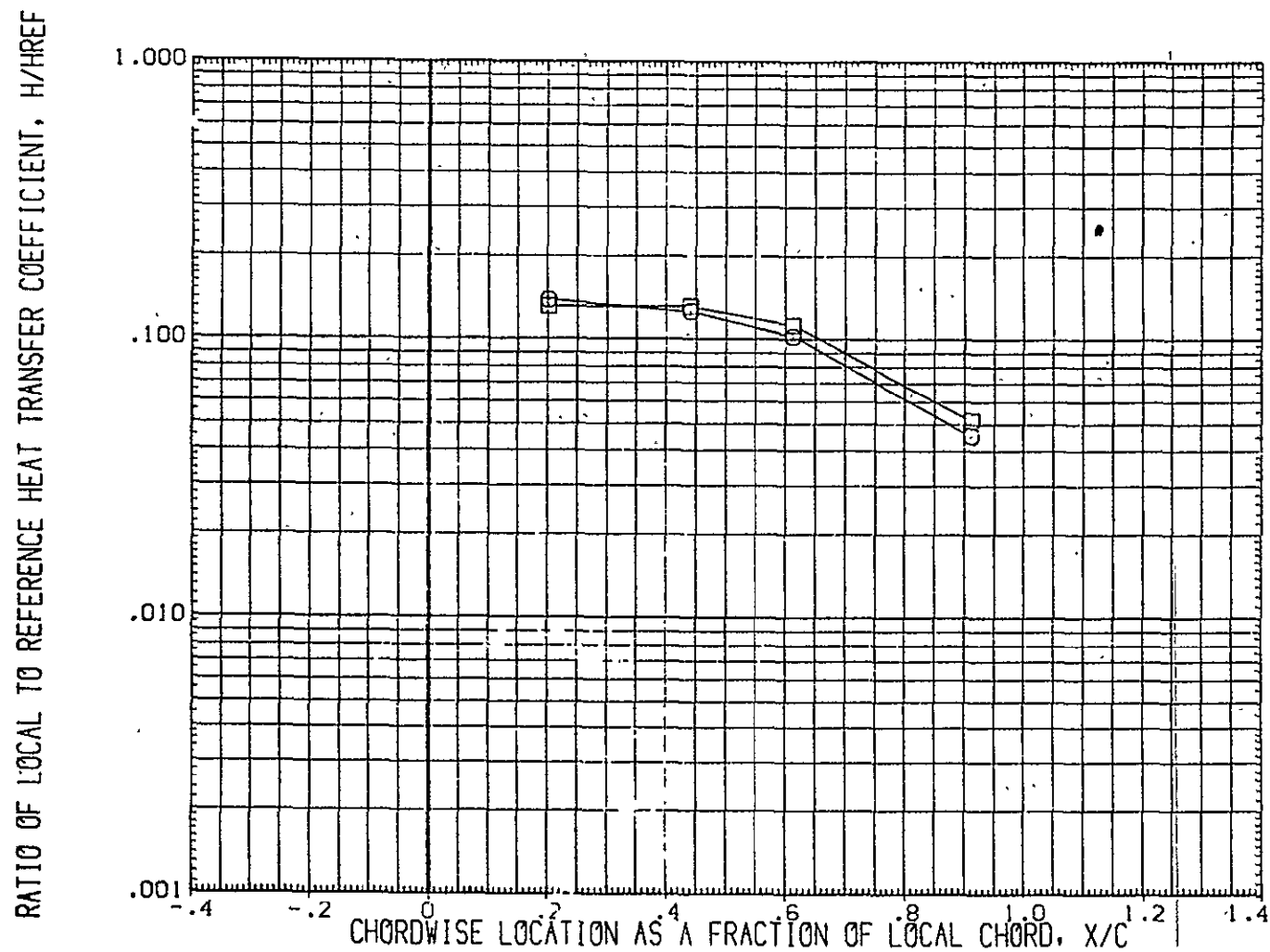


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25
MACH = 15.880 HAW/HT= .900 2Y/B = .600 PAGE 868

DATA SET SYMBOL	CONFIGURATION DESCRIPTION		RN/L	ALPHA	BETA
(FUGW10)	OH12/H21 (CAL HST 173-100) 37 0	WING L.S.	.045	25.000	.000
(FUGW15)	OH12/H21 (CAL HST 173-100) 37 0	WING L.S.	.238	25.000	.000

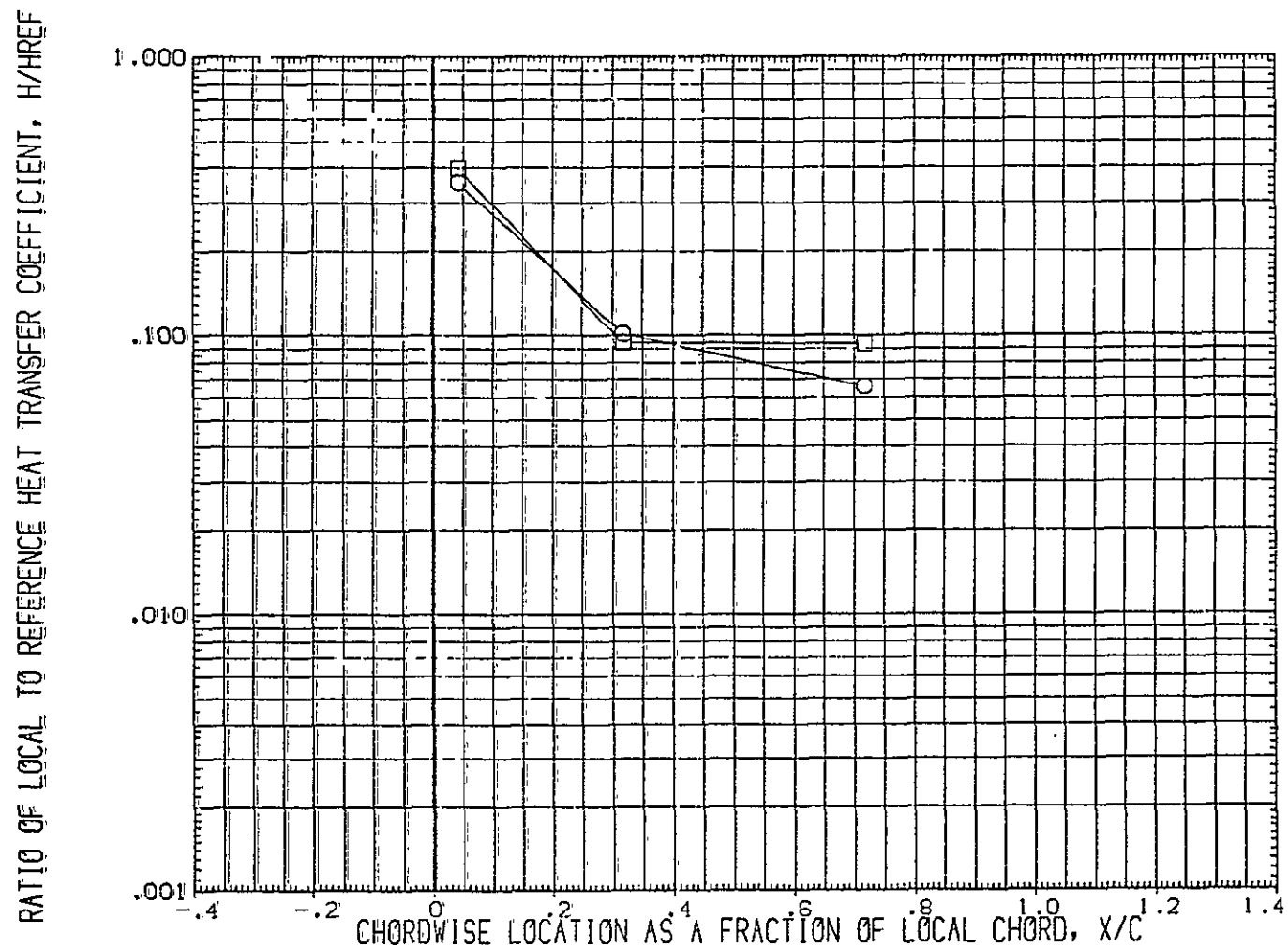


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT = .900 2Y/B = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGW10) □	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.045	25.000	.000
(1UGW15) ○	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.238	25.000	.000

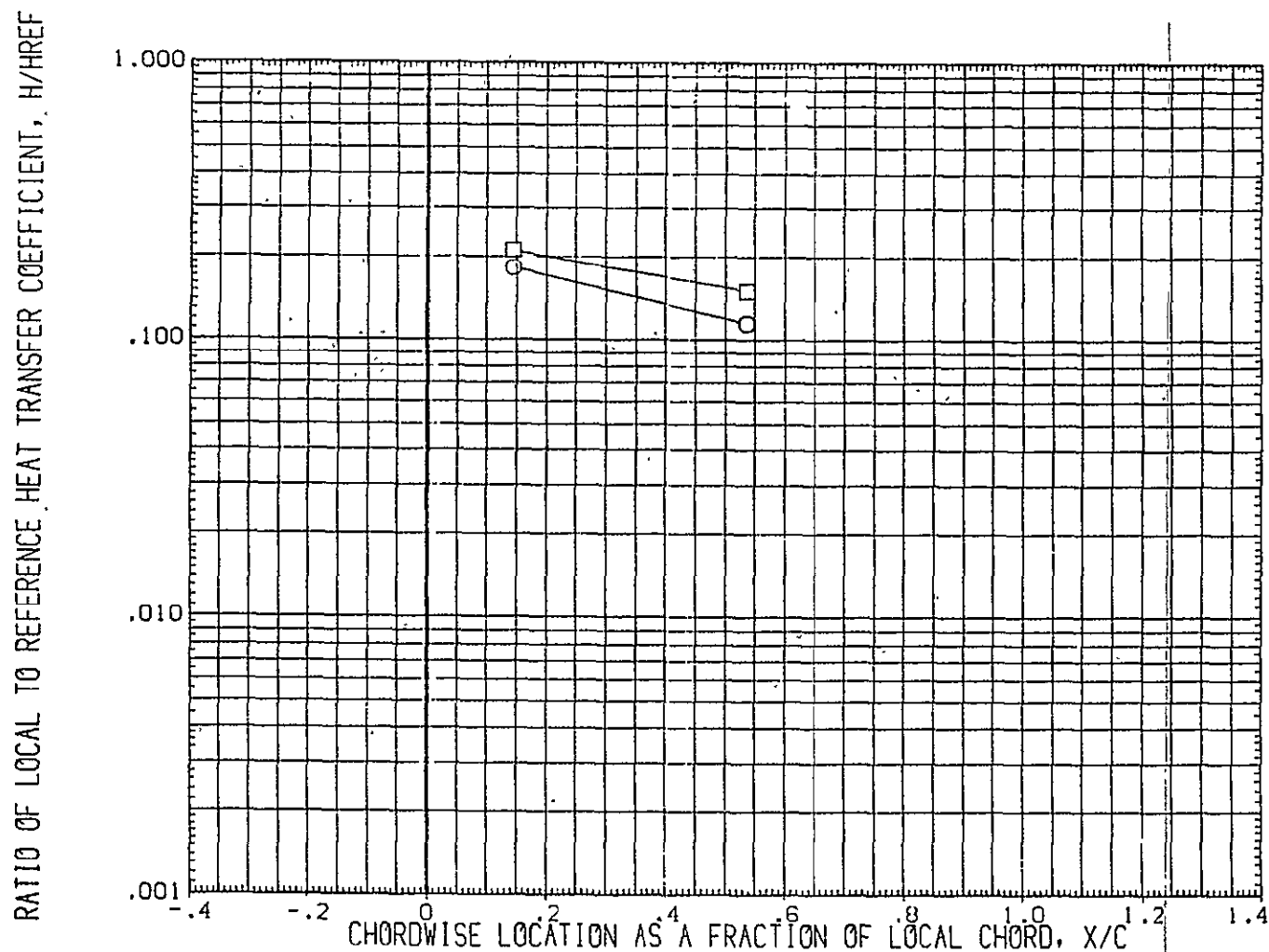


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25
MACH = 15.880 HAW/HT= .900 2Y/B = .950 PAGE 870

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA	
(FUGW10)	G-12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.045	25.000	.000
(FUGW15)	G-12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.238	25.000	.000

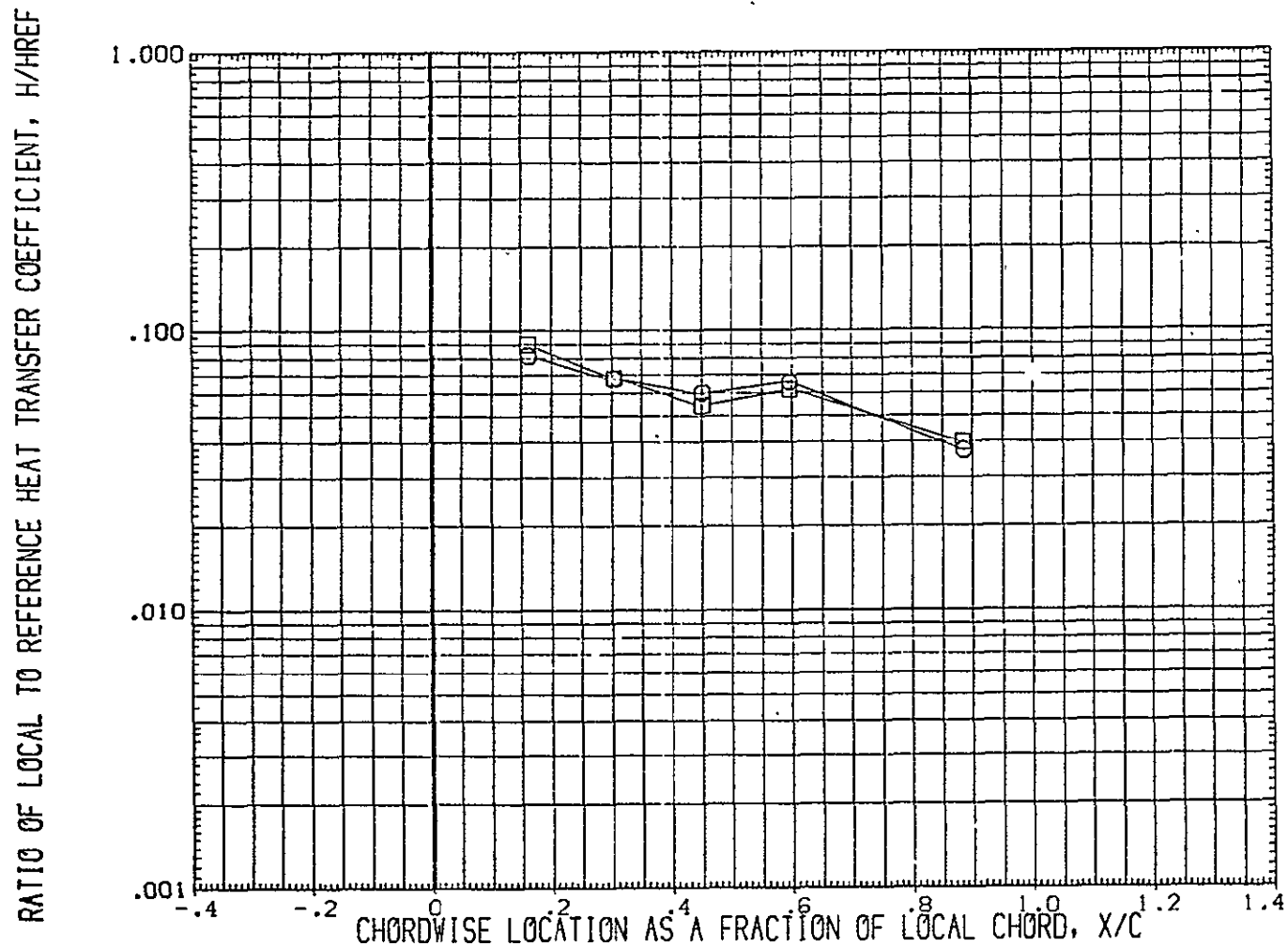


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25
MACH = 15.880 HAW/HT= 1.000 2Y/B = .250 PAGE 871

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WING L.S.	RN/L	ALPHA	BETA
(FUGW10)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.045	25.000	.000
(1UGW15)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.238	25.000	.000

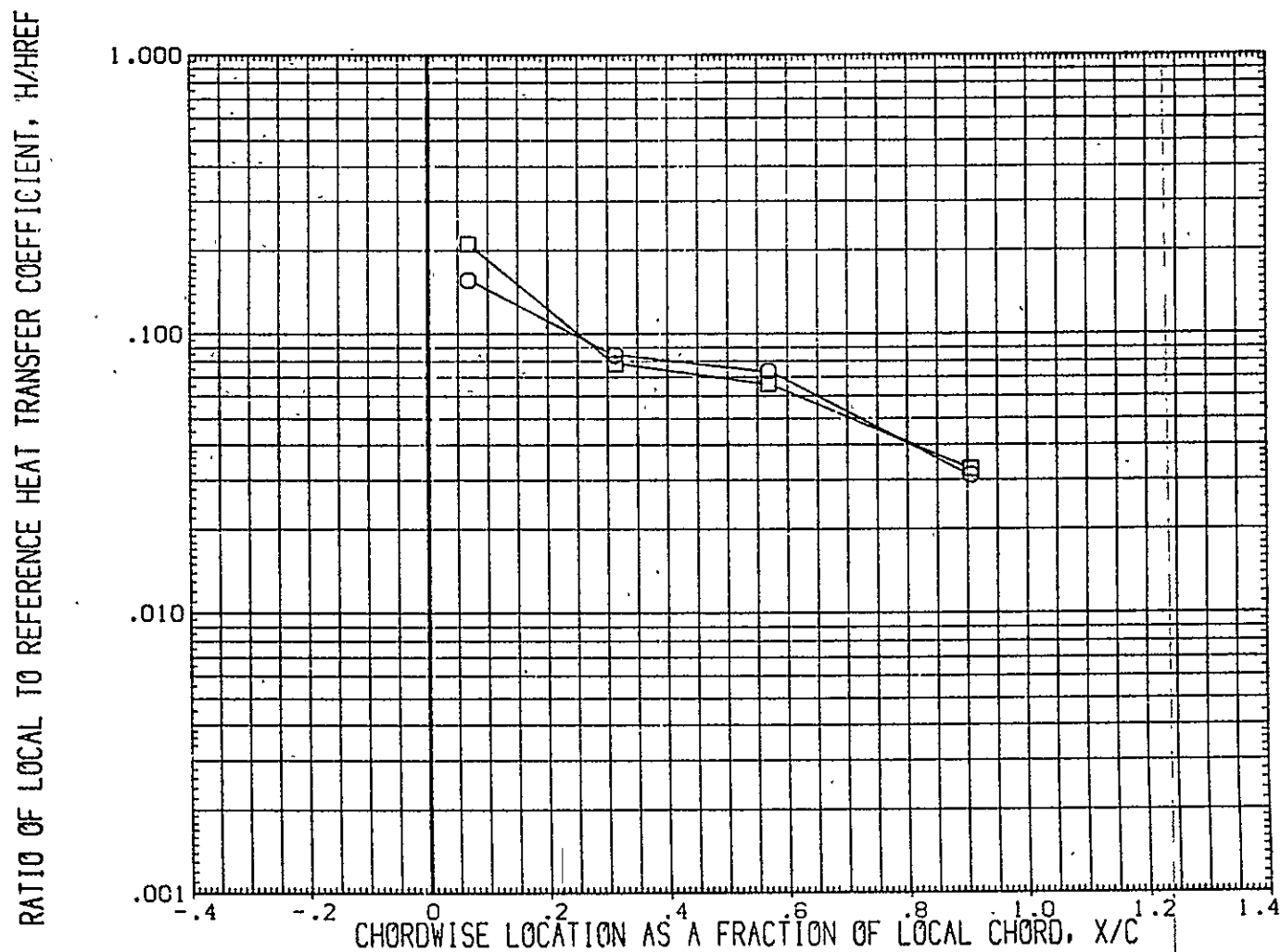


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= 1.000 2Y/B = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	37 C	WING L.S.	RM/L	ALPHA	BETA
(FUGW10)	CH12/1H21 (CAL HST 173-100)					.045	25.000	.000
(1UGW15)	CH12/1H21 (CAL HST 173-100)					.238	25.000	.000

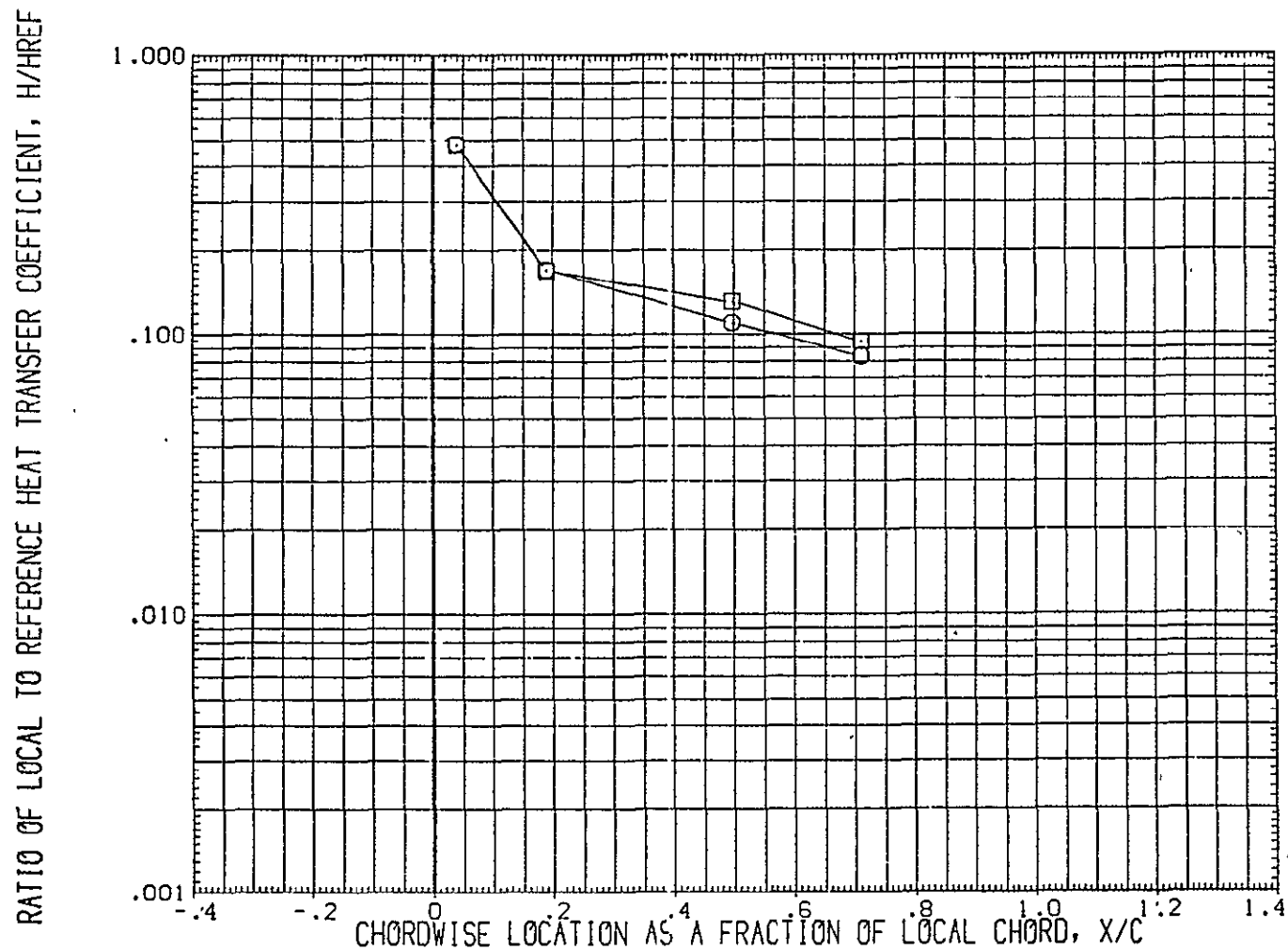


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= 1.000 2Y/B = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGW10)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.045	25.000	.000
(FUGW15)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.238	25.000	.000

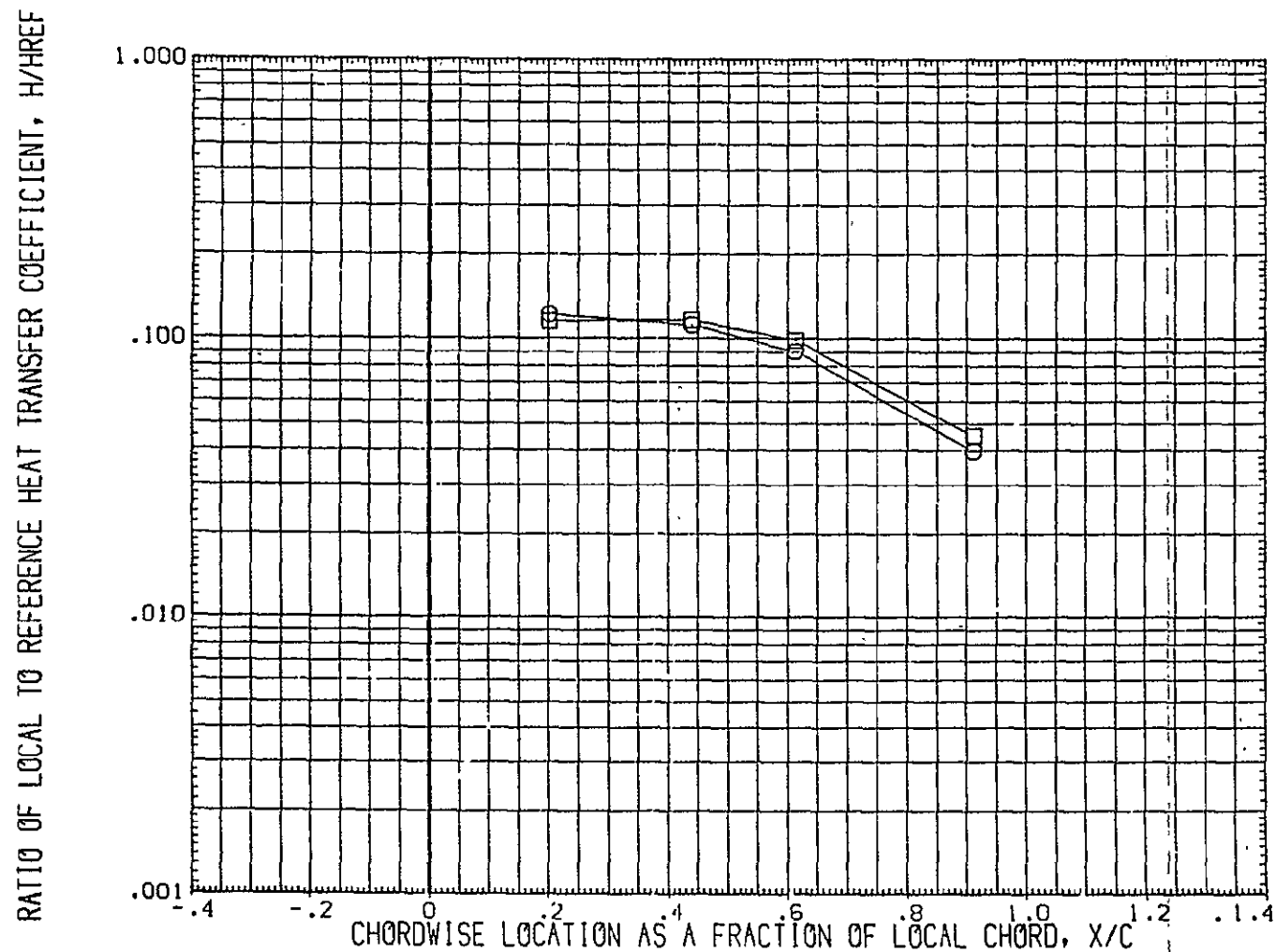


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= 1.000 $2\gamma/B = .600$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	REYNOLDS	ALPHA	BETA
(FUGW10)	0412/1421 (CAL HST 173-100)	37 0	WING L.S.	.045	25.030	.000
(FUGW15)	0412/1421 (CAL HST 173-100)	37 0	WING L.S.	.238	25.000	.000

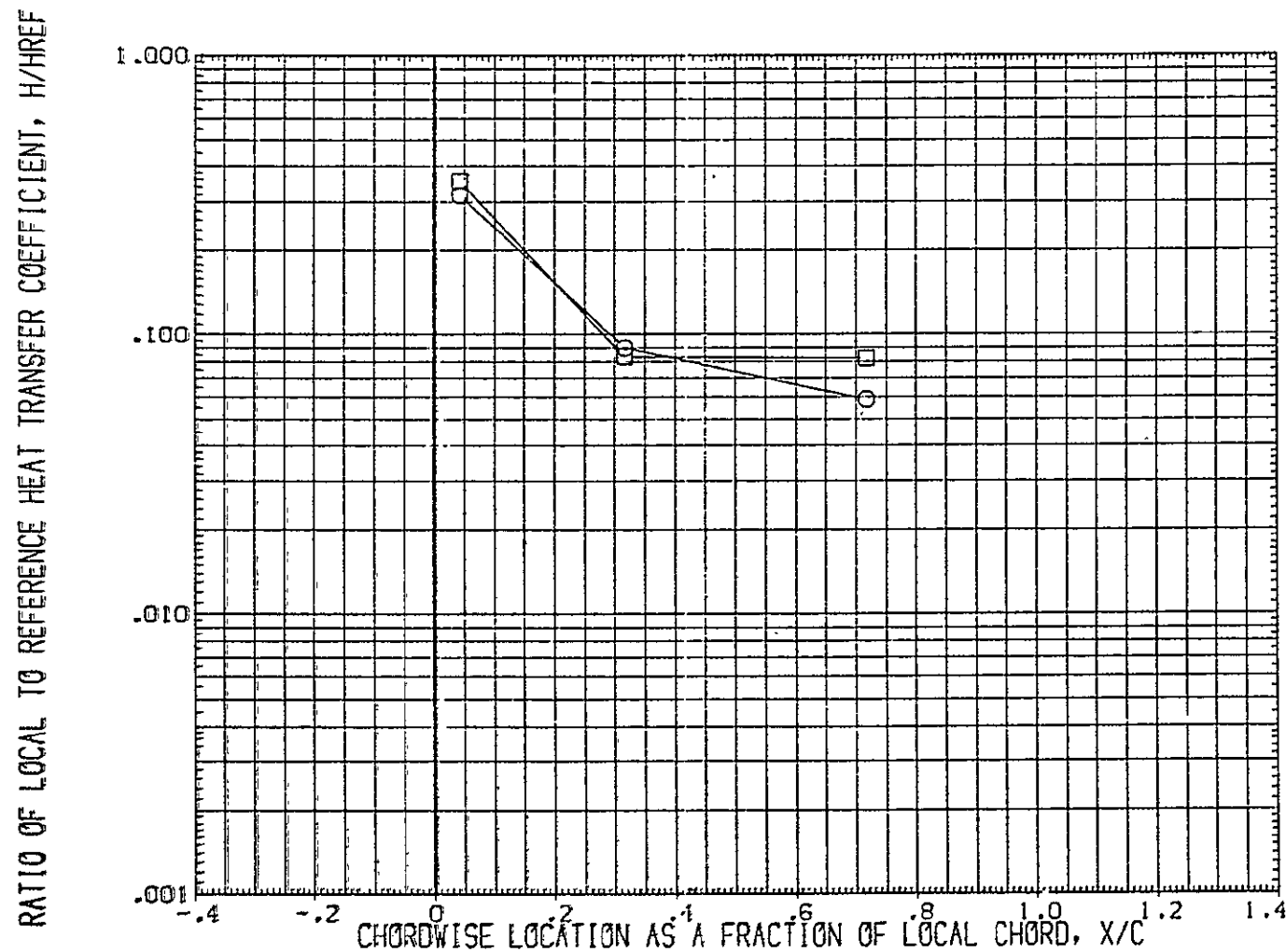


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25
MACH = 15.880 HAW/HT= 1.000 2Y/B = .750 PAGE 875

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGW10)	OH12/1-21 (CAL HST 173-100) 37 0 WING L.S.	.045	25.000	.000
(FUGW15)	OH12/1-21 (CAL HST 173-100) 37 0 WING L.S.	.238	25.000	.000

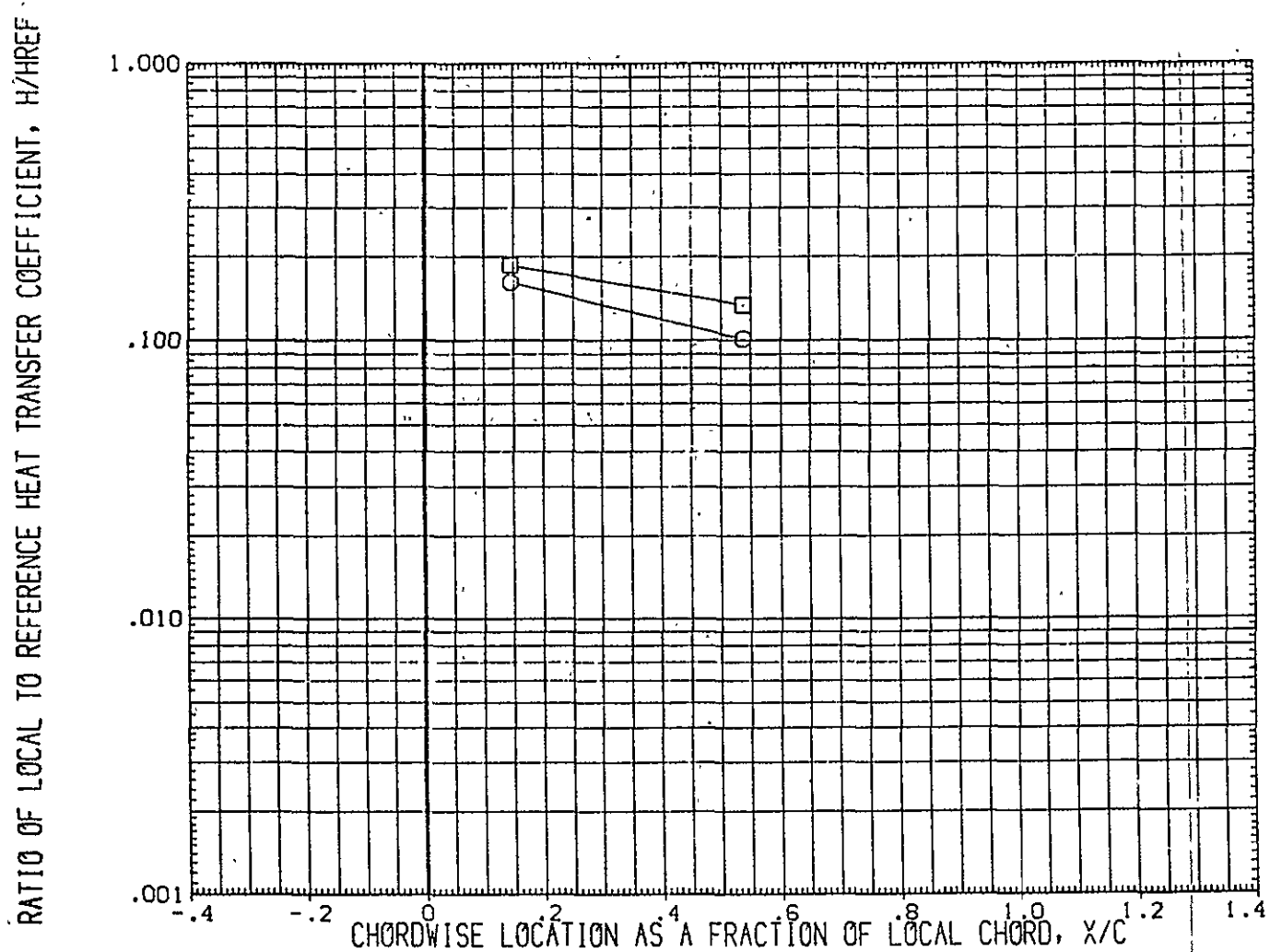


FIG.28 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= 1.000 2Y/B = .950

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(EUGV10)	□	0M12/1H21 (CAL HST 173-100) 37 0	VERTICAL	.262	25.000	.000
(JUGV15)	○	0M12/1H21 (CAL HST 173-100) 37 0	VERTICAL	.955	25.000	.000

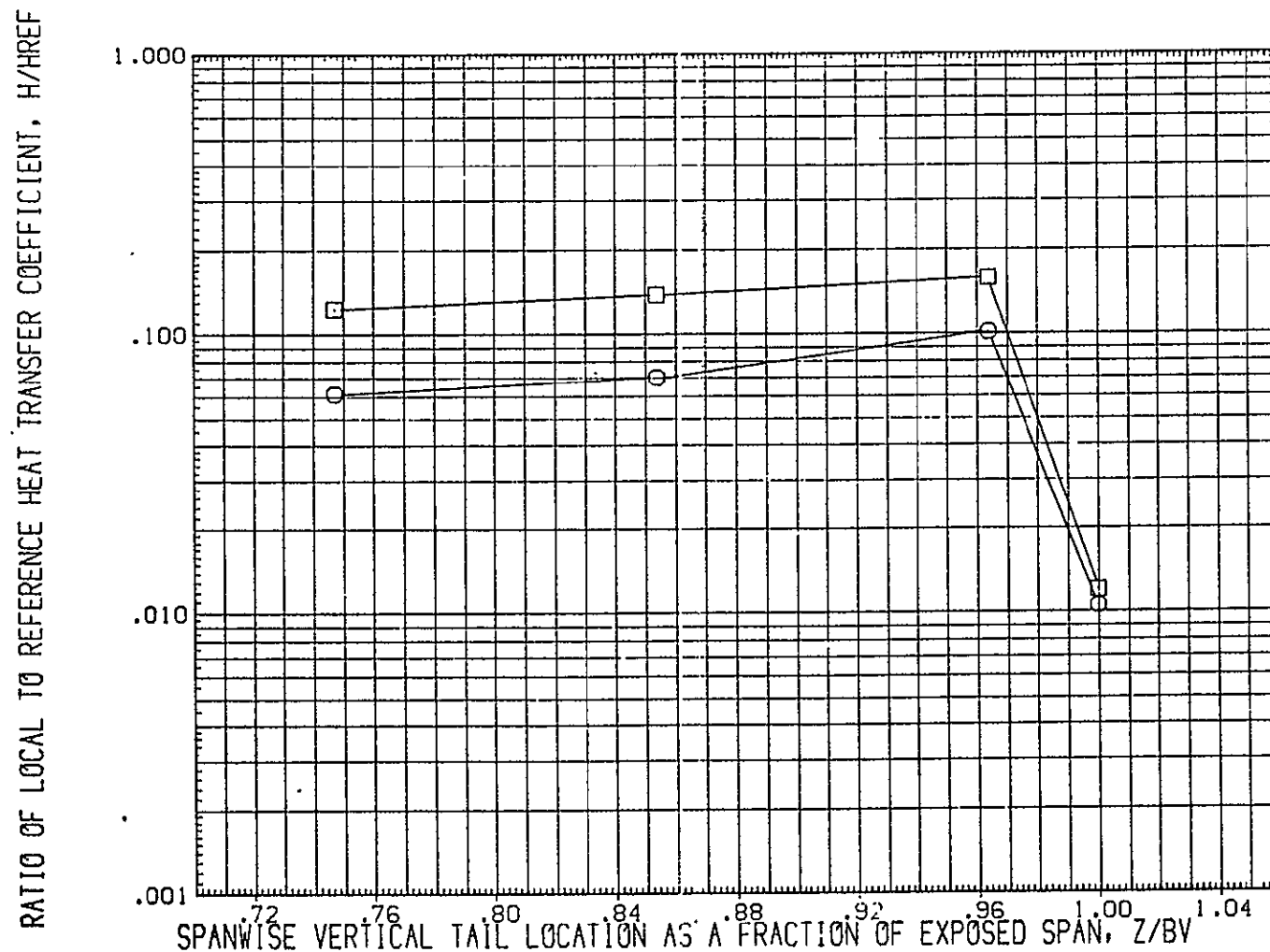


FIG.29 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .850 GAGENO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	REYNOLDS NO.	ALPHA	BETA
(EUCV10)	OH12/IH21 (CAL HST 173-100)	37 0	25.000	.000
(JUGV15)	OH12/IH21 (CAL HST 173-100)	37 0	25.000	.000

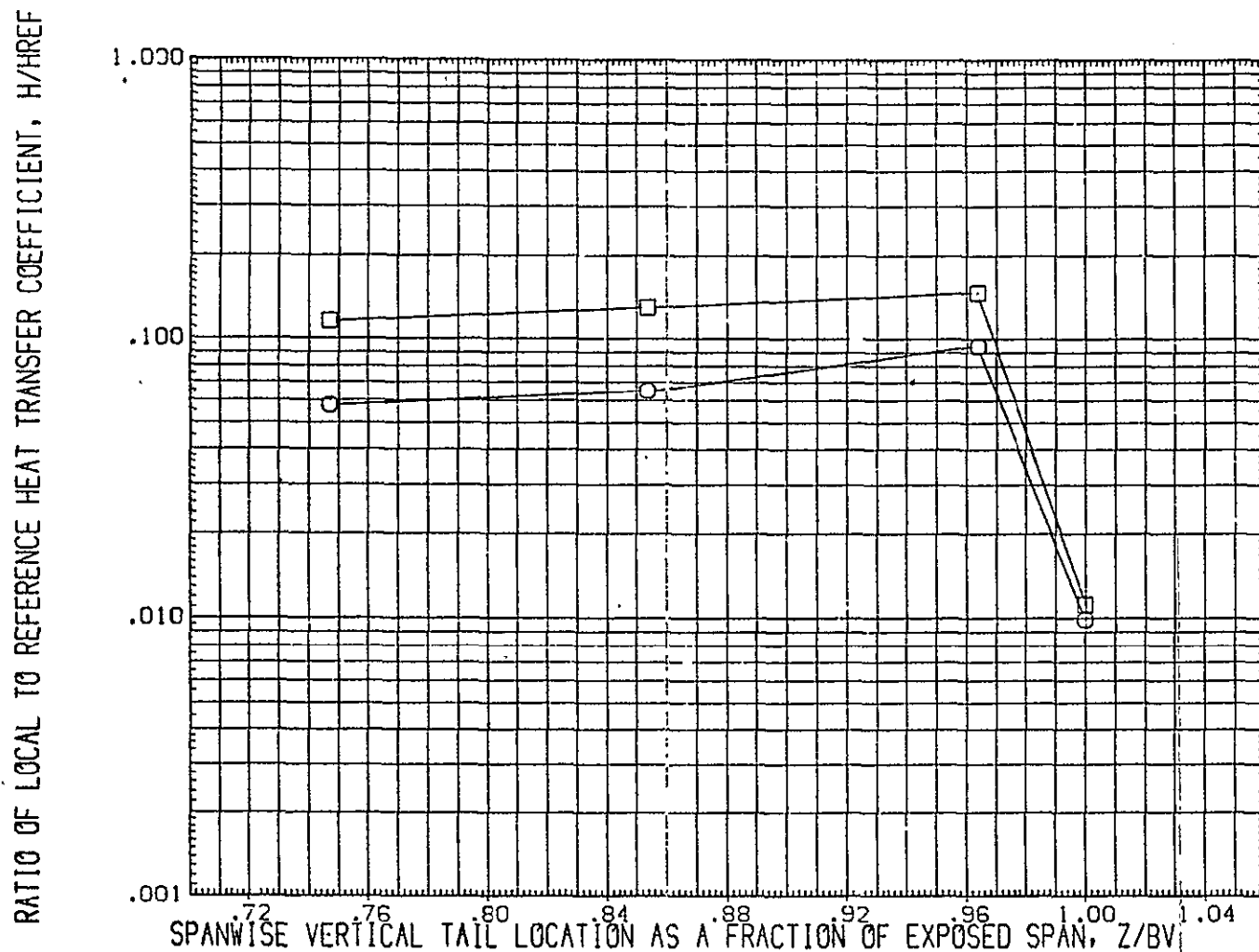


FIG.29 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= .900 GAGENO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUSV10)	CH12/1421 (CAL HST 73-100) 37 0	VERTICAL .262	25.000	.000
(JUGV15)	CH12/1421 (CAL HST 73-100) 37 0	VERTICAL .955	25.000	.000

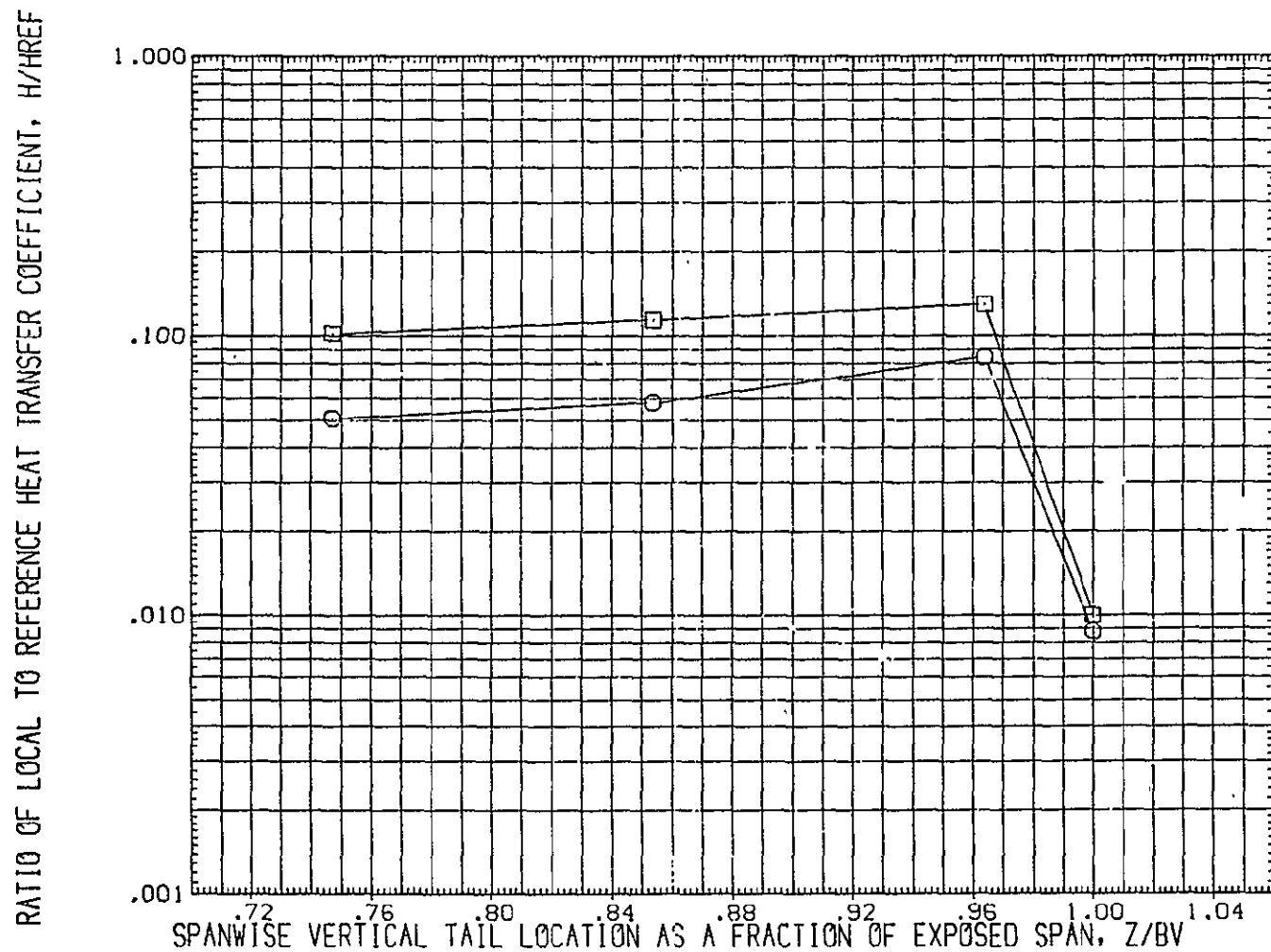


FIG.29 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=25

MACH = 12.100 HAW/HT= 1.000 GAGENO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	REYNOLDS NO.	ALPHA	BETA	
(FUGV10)	CH12/1H21 (CAL HST 173-100) 37 0	VERTICAL	.045	25.000	.000
(JUGV15)	OH12/1H21 (CAL HST 173-100) 37 0	VERTICAL	.238	25.000	.000

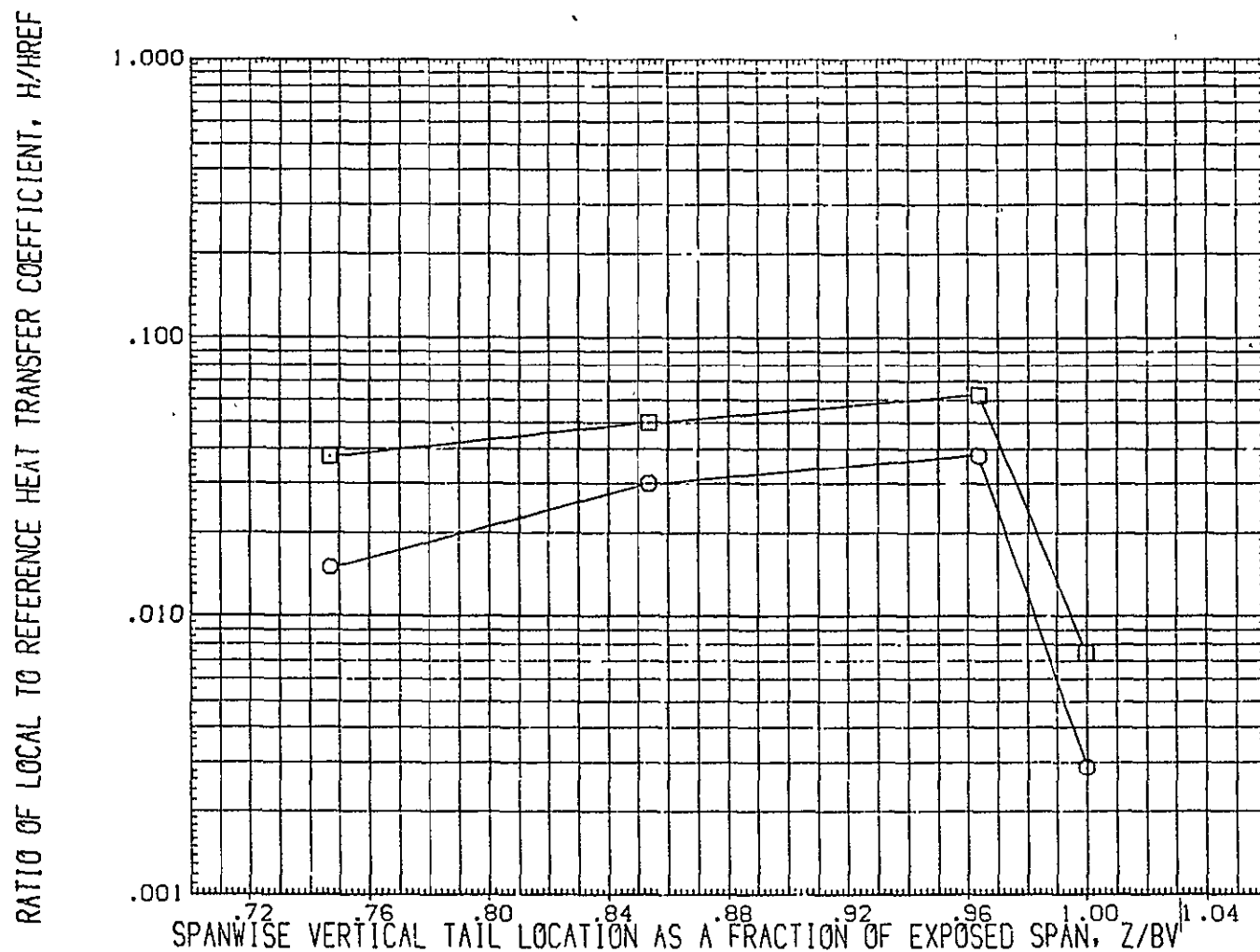


FIG.29 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= .850 GAGENO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGV10)	OH12/1H21 (CAL HST 173-100) 37 C	VERTICAL	.045	25.000	.000
(FUGV15)	OH12/1H21 (CAL HST 173-100) 37 O	VERTICAL	.238	25.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

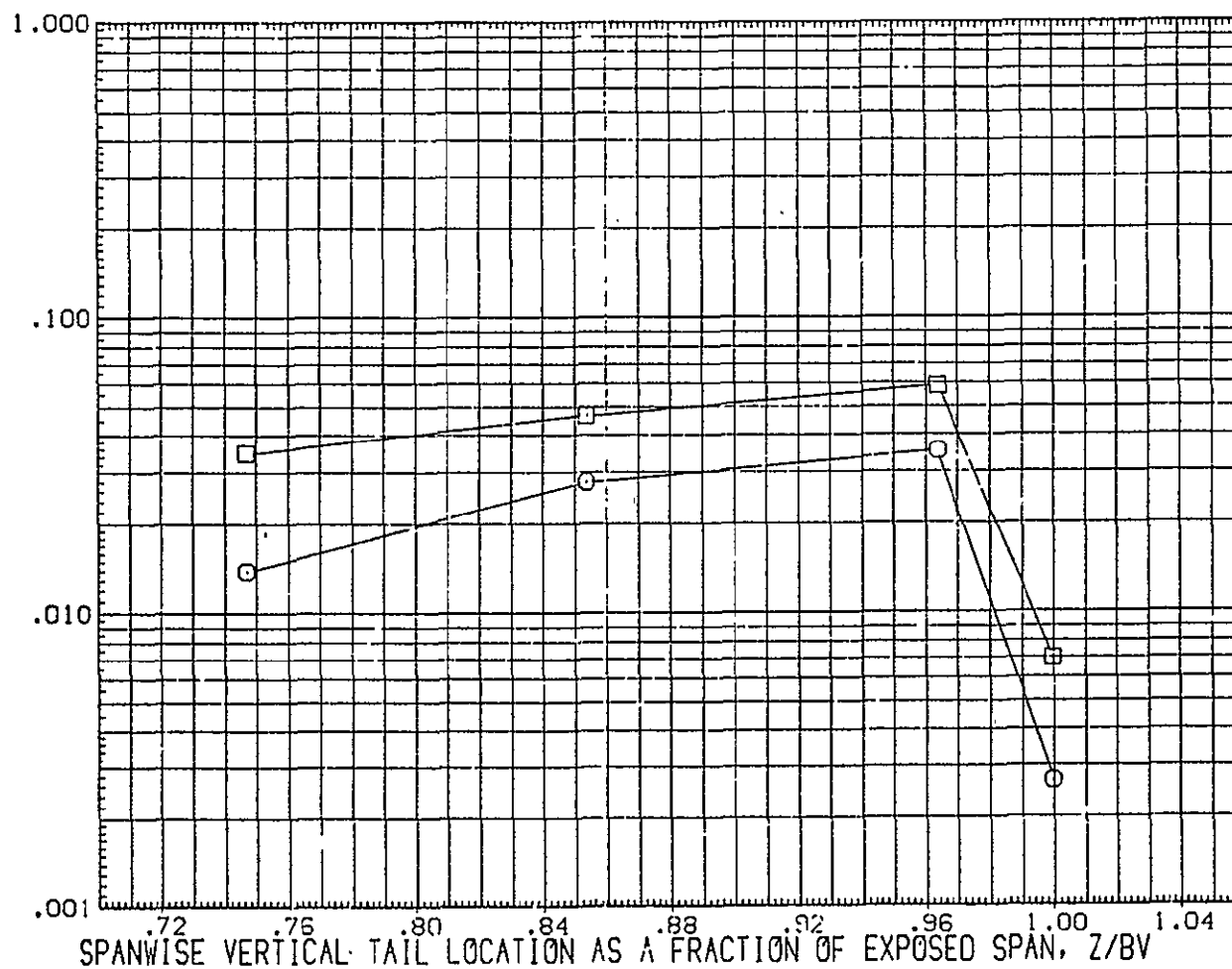


FIG.29 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= .900 GAGENO= 40.000

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA
(FUSV10)	○	OH12/14-21 (CAL HST 173-100) 37 0	VERTICAL	.015	25.000
(106V15)	□	OH12/14-21 (CAL HST 173-100) 37 0	VERTICAL	.238	25.000

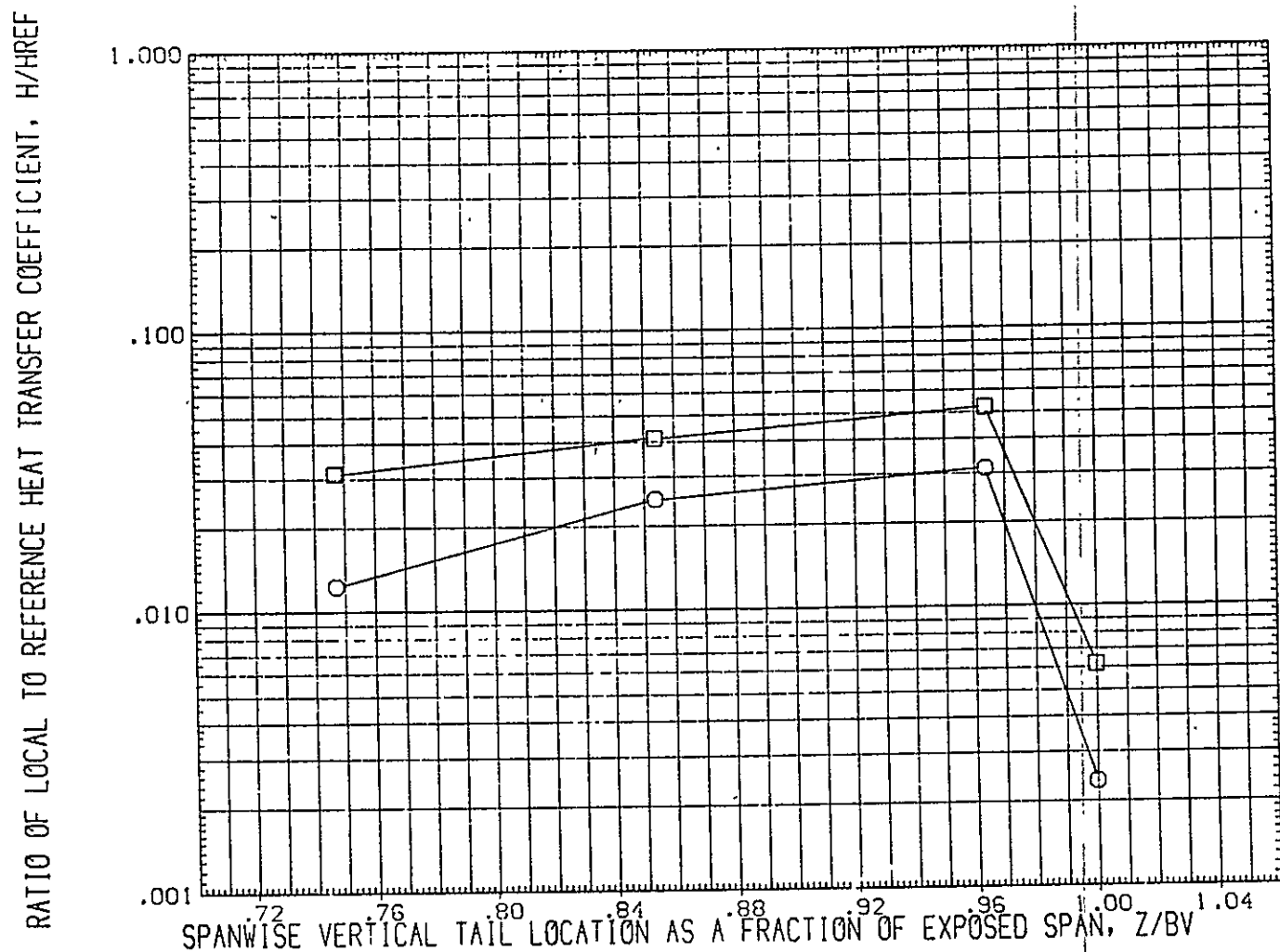


FIG.29 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=25

MACH = 15.880 HAW/HT= 1.000 GAGENO= 40.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
{EUSB11}	CH12/H21 (CAL HST 173-100) 37 0	FUSELAGE .254	30.090	.000
{JUGB16}	CH12/H21 (CAL HST 173-100) 37 0	FUSELAGE .963	30.090	.000

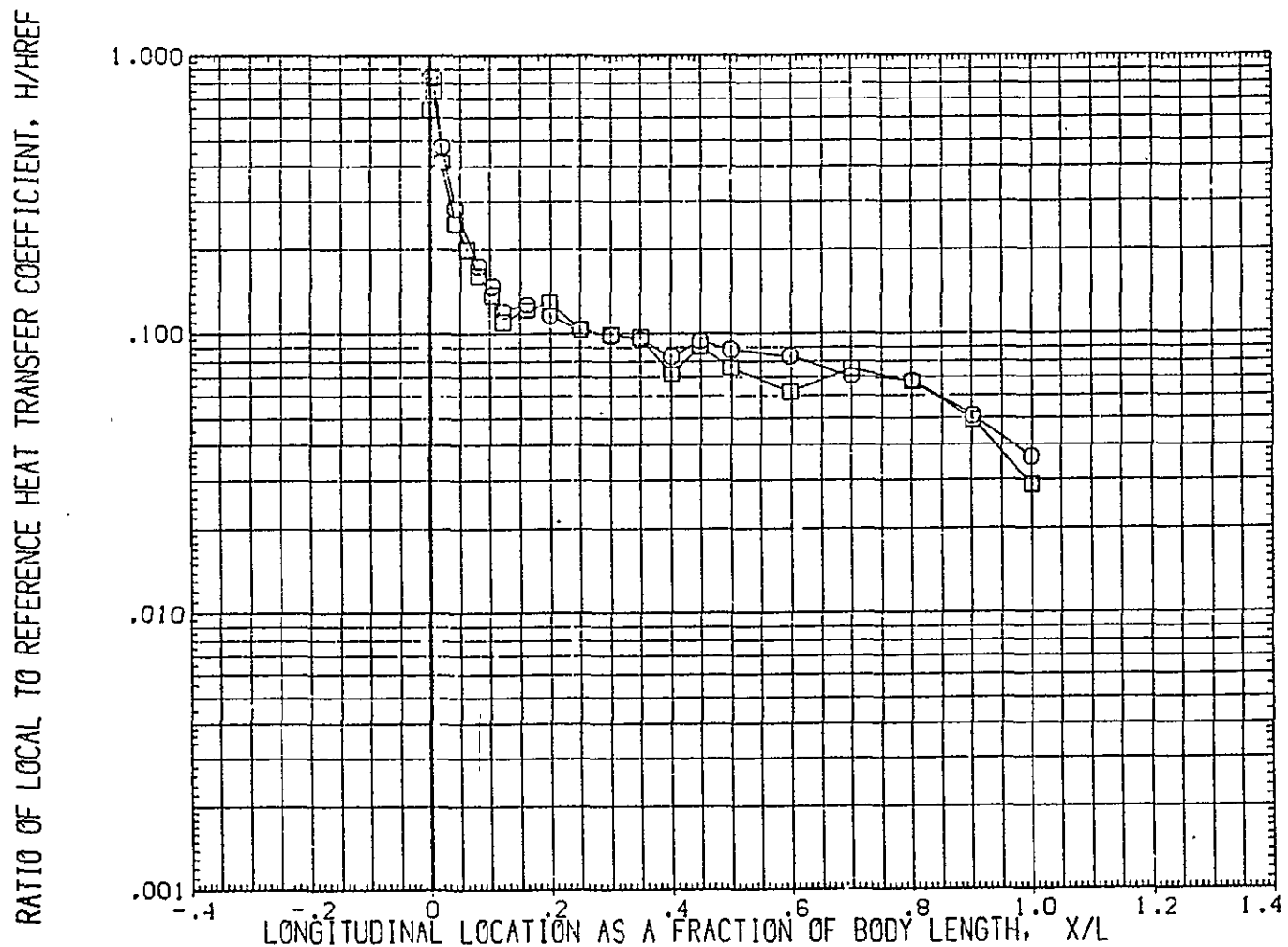


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 12.100 $H_{AW}/H_T = .850$ PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(EUSB11)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.254	30.000	.000
(JUGB16)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.963	30.000	.000

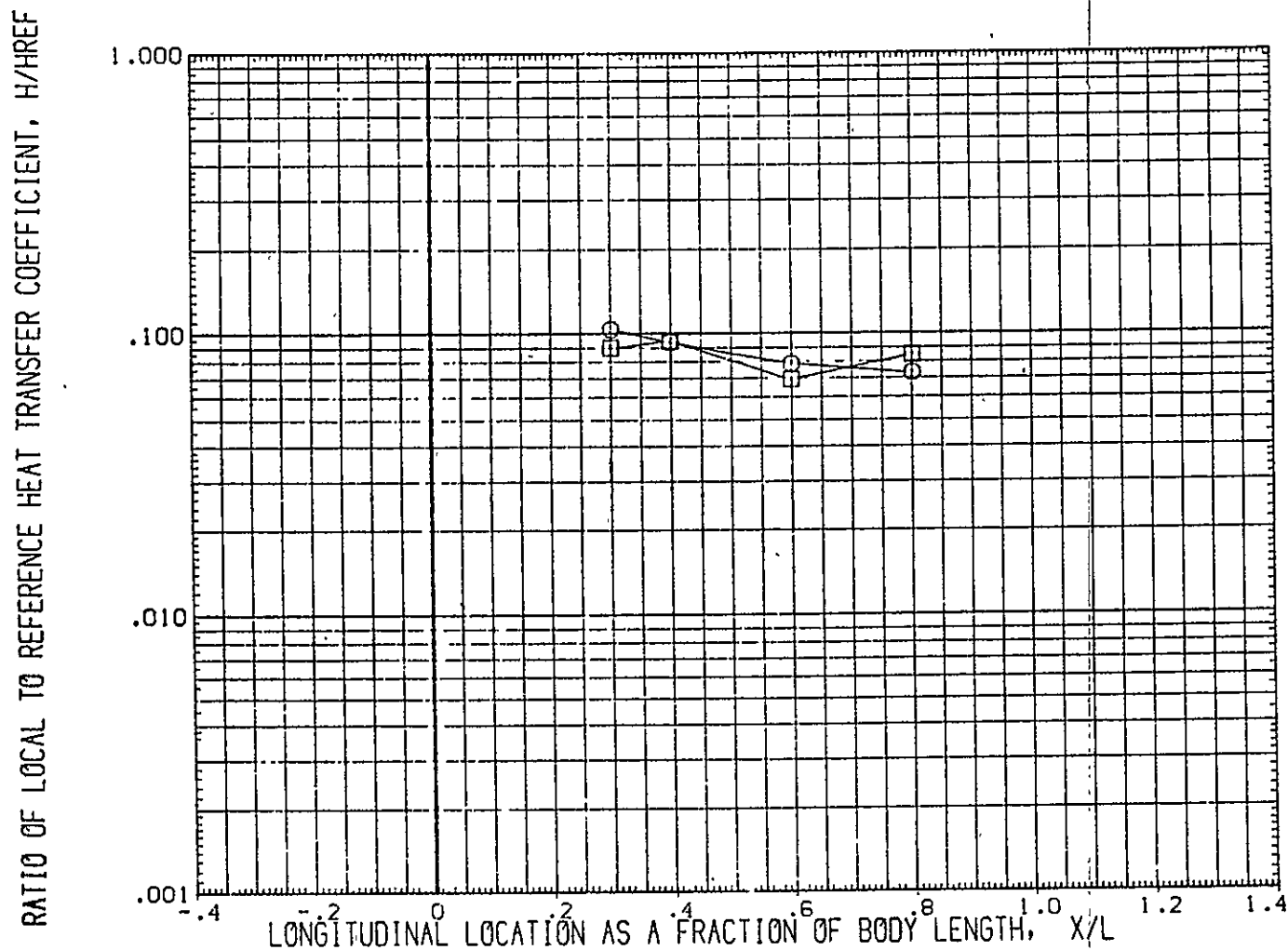


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT = .250 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	R'/L	ALPHA	BETA	
(EUCB11)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.254	30.000	.000
(JUCB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.963	30.000	.000

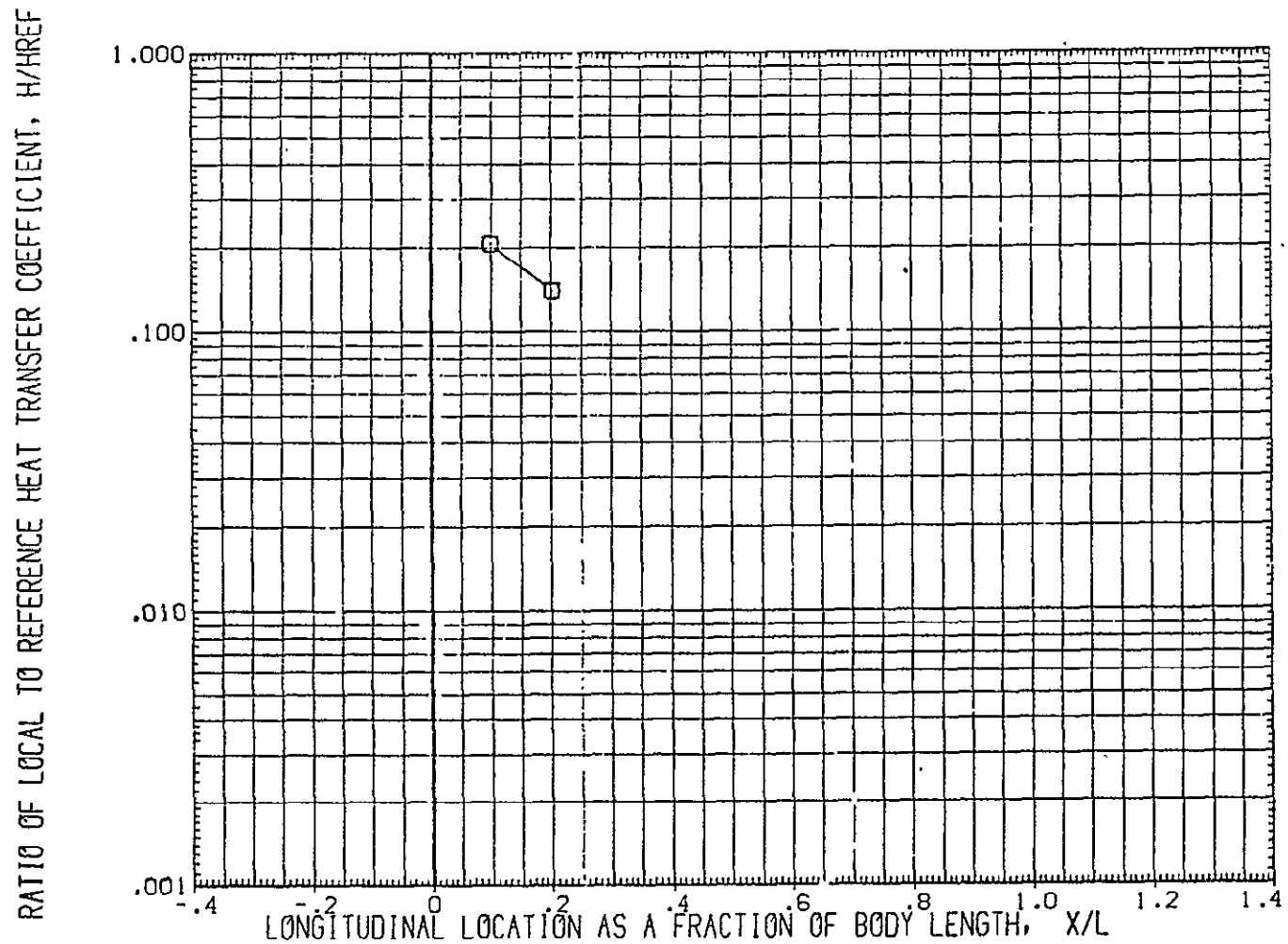


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= .850 PHI = 30.000

DATA SET SYMBOL	CONFIGURATION	DESCRIPTION	37 0	FUSELAGE	REYNOLDS NO.	ALPHA	BETA
(EUG811)	○	OH12/1421 (CAL HST 173-100)	37 0	FUSELAGE	.254	30.000	.000
(JUG816)	□	OH12/1421 (CAL HST 173-100)	37 0	FUSELAGE	.963	30.000	.000

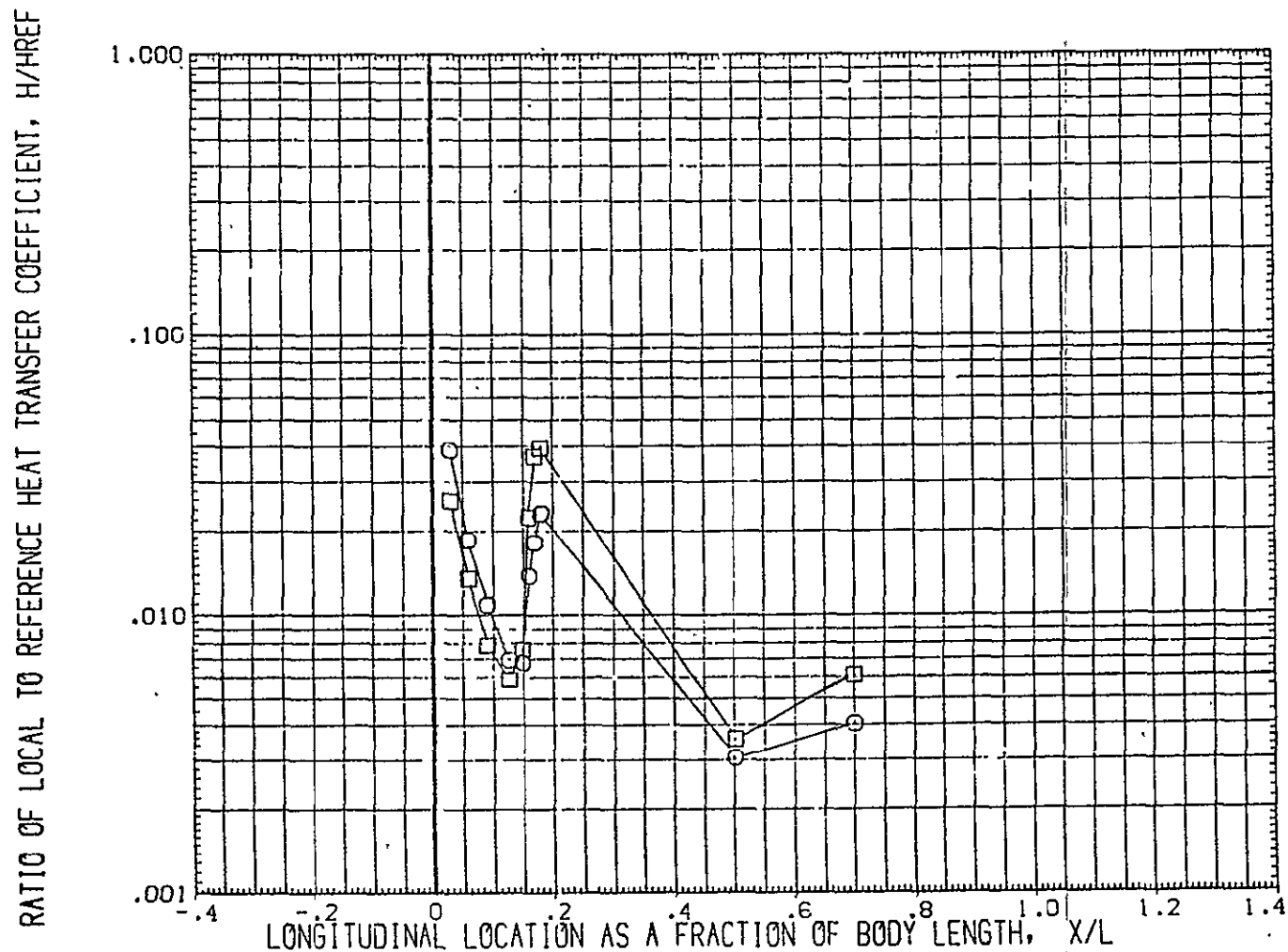


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= .850 FHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA	
(EUGB11)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.254	30.000	.000
(JUGB16)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.963	30.000	.000

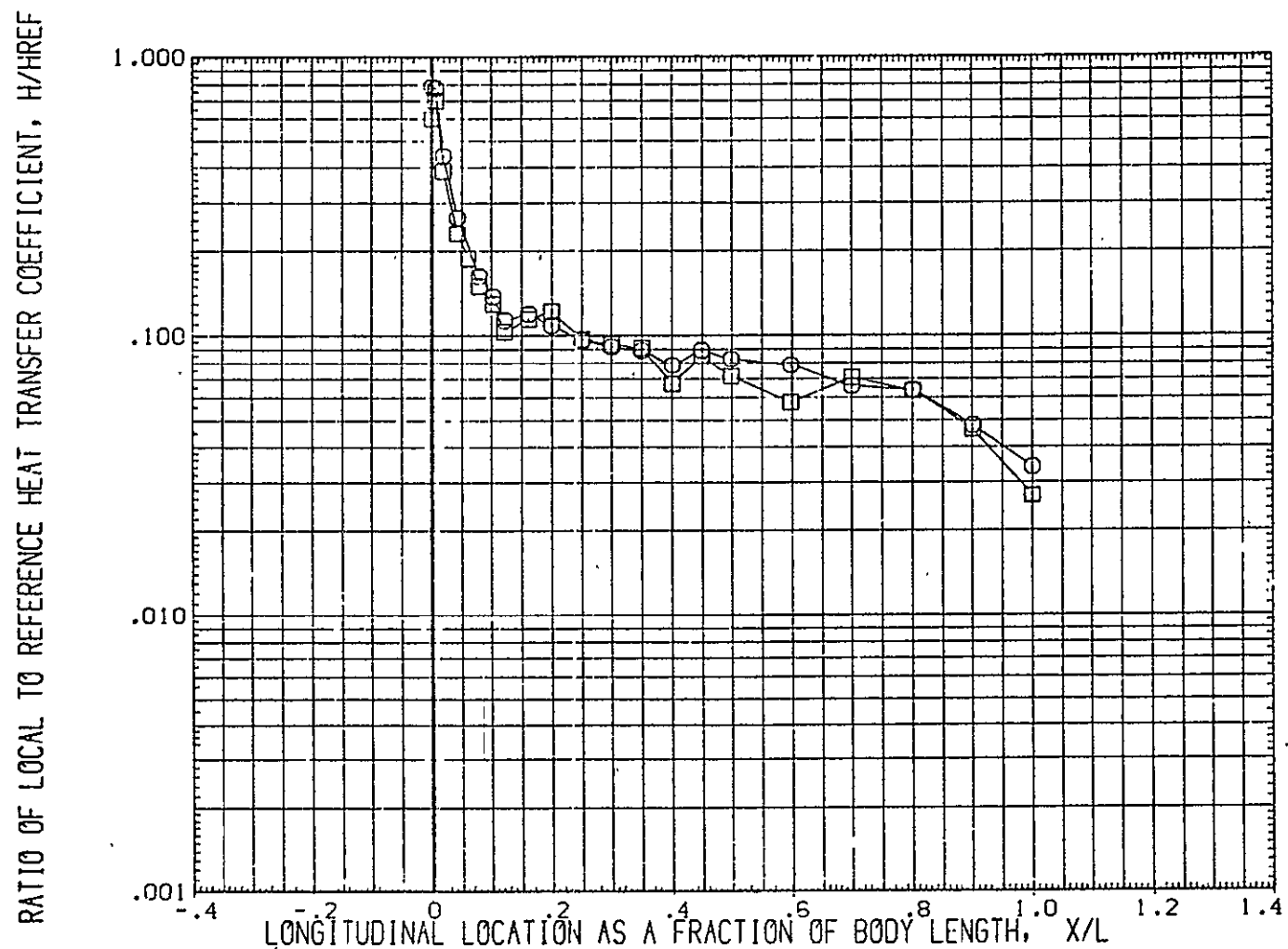


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 12.100 HA/H_{REF} = .930 PH = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA	
(EUGB11)	CH12/1421 (CAL HST 173-100) 37 C	FUSELAGE	.254	30.000	.000
(JUGB16)	CH12/1421 (CAL HST 173-100) 37 C	FUSELAGE	.253	30.000	.000

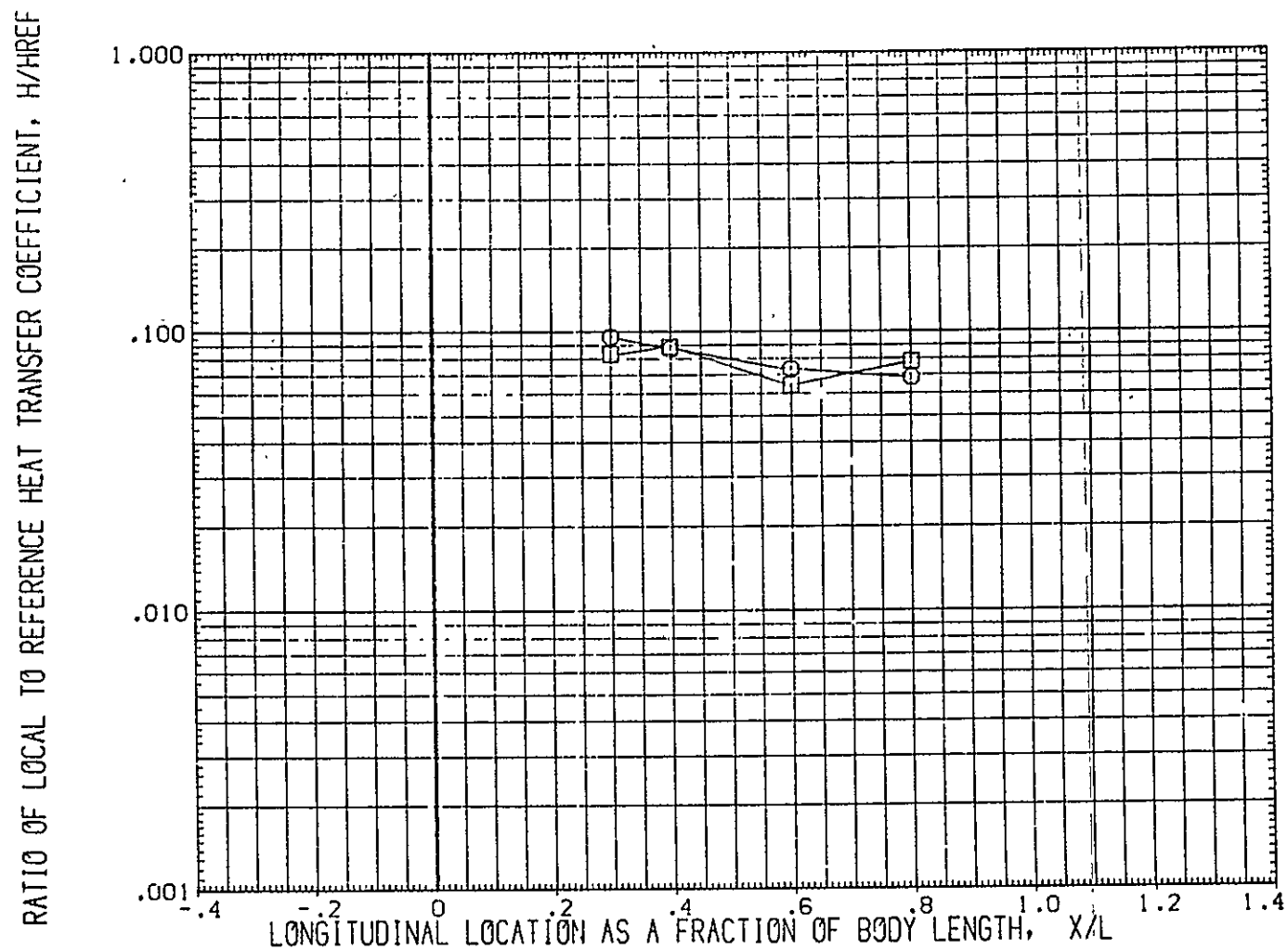


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= .300 PHI = 25.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(EUG811)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	.254	30.000	.000
(JUG816)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	.963	30.000	.000

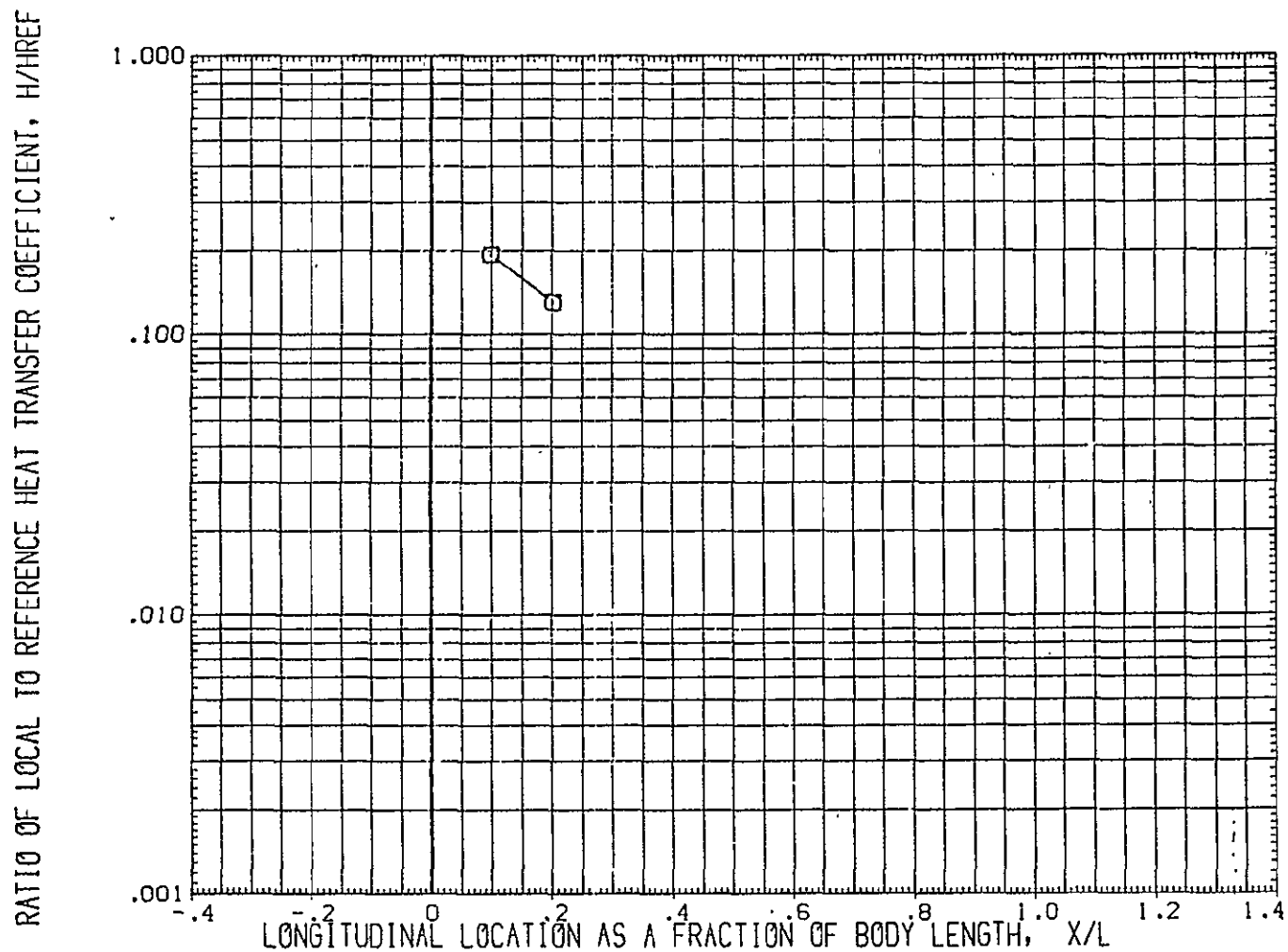


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= .900 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUG811)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .254	30.000	.000
(JUG816)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .953	30.000	.000

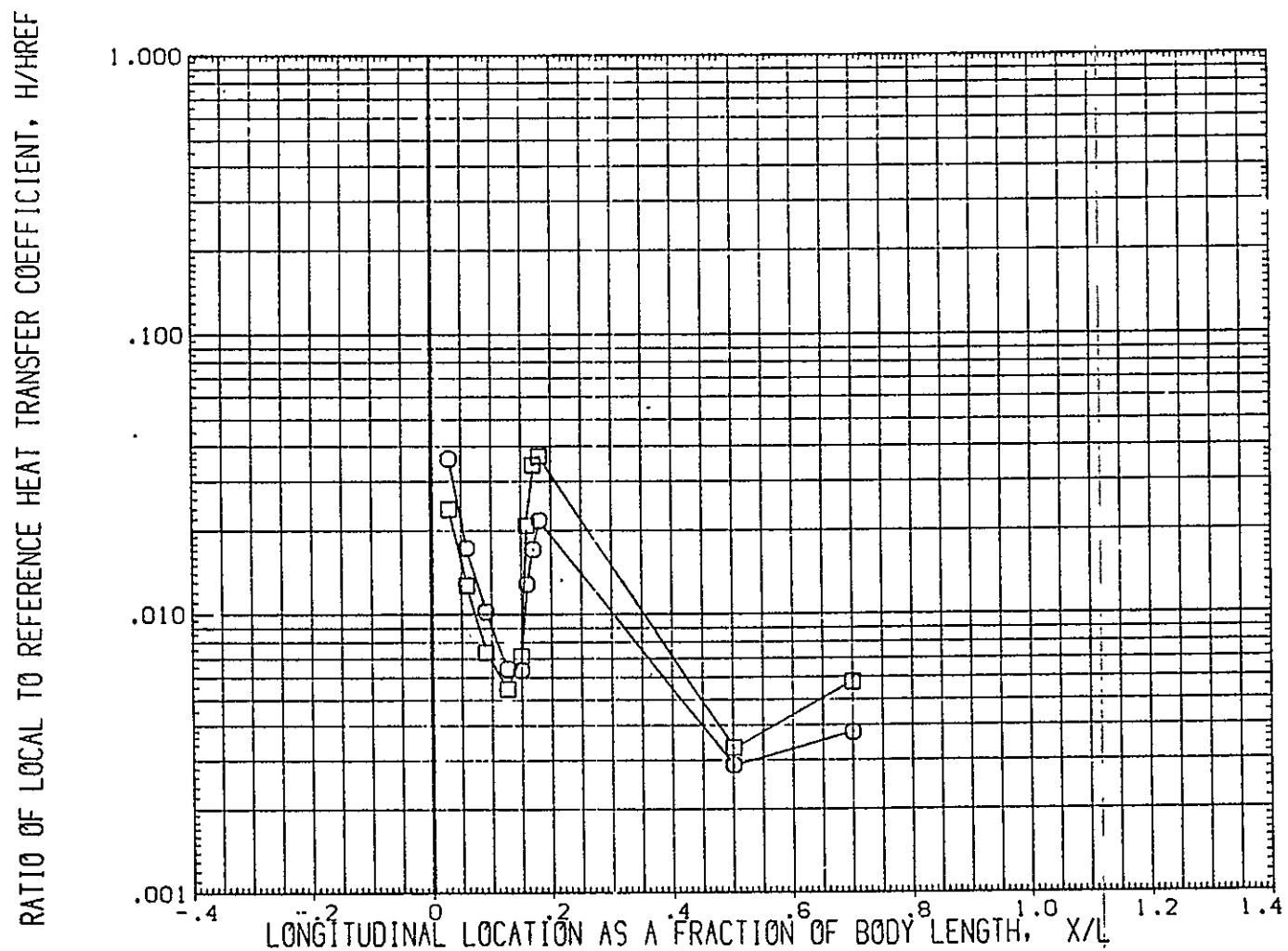


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= .900 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RV/L	ALPHA	BETA	
(EUGB11)	OH12/1H21 (CAL HST 173-100) 37 0	USELAGE	.254	30.000	.000
(JUGB16)	OH12/1H21 (CAL HST 173-100) 37 0	USELAGE	.963	30.000	.000

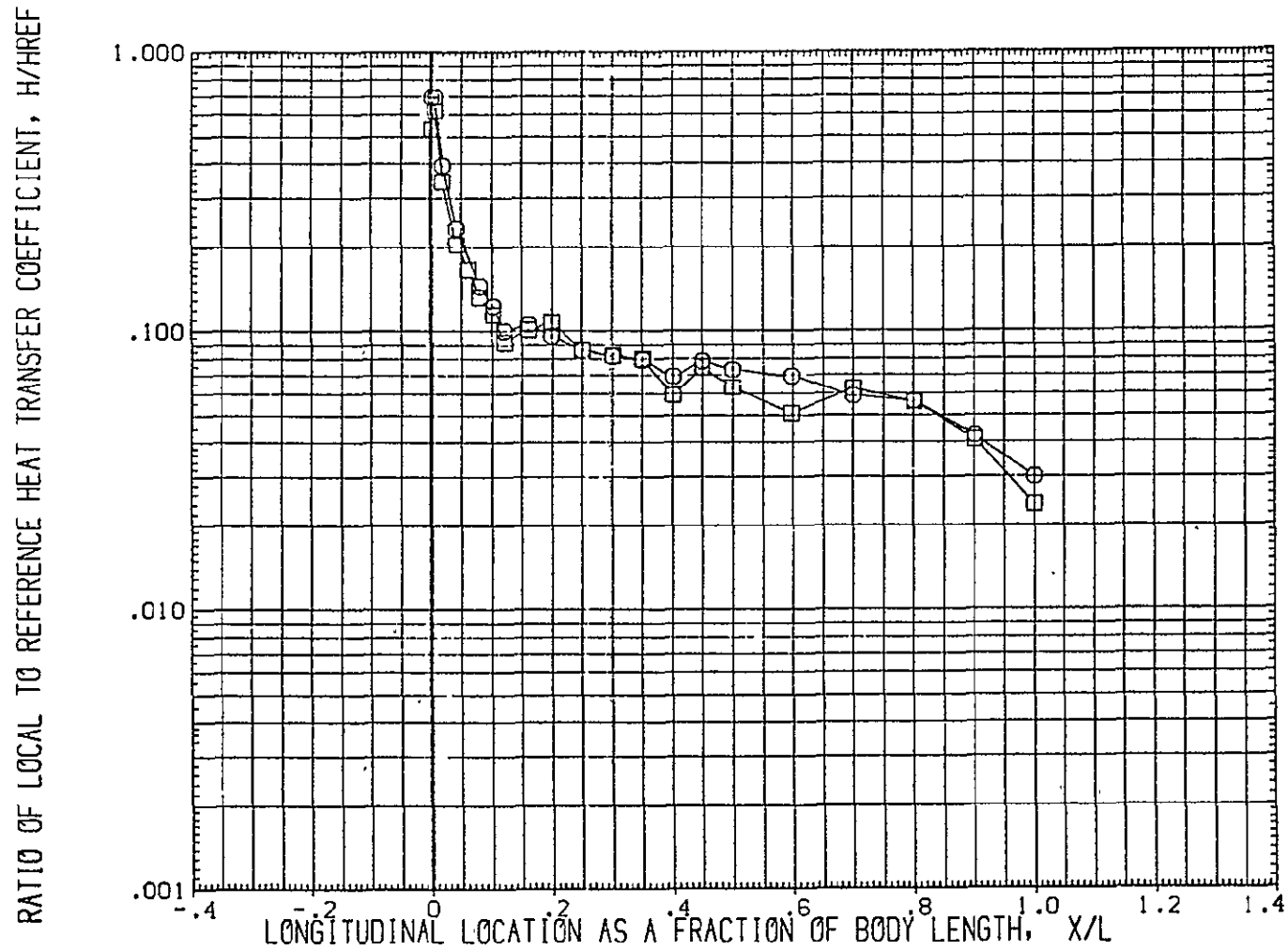


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= 1.000 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(EUGB11)	CH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	.254	30.000	.000
(JUGB16)	CH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	.963	30.000	.000

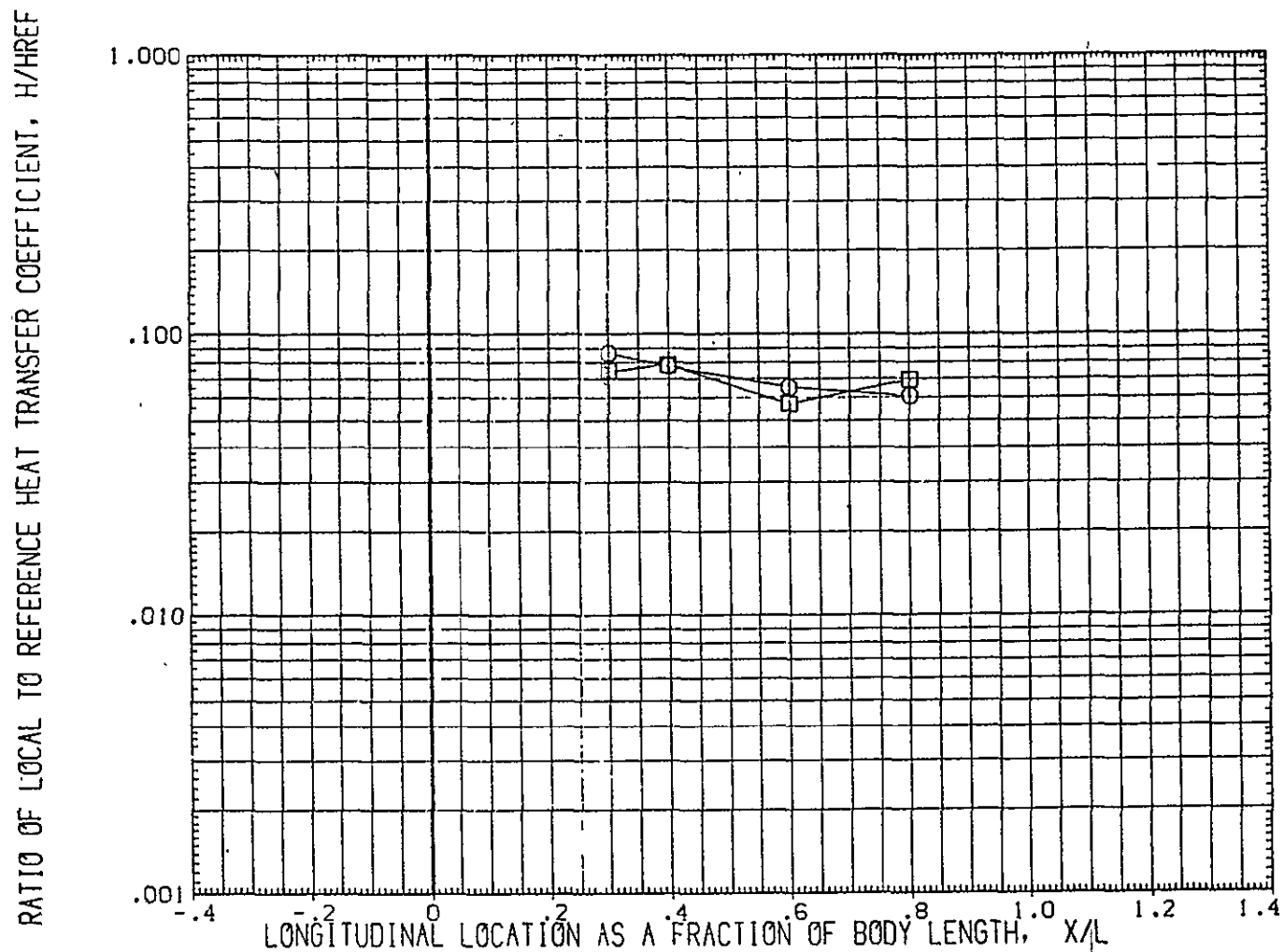


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= 1.000 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGB11)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .254	30.000	.000
(JUGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .963	30.000	.000

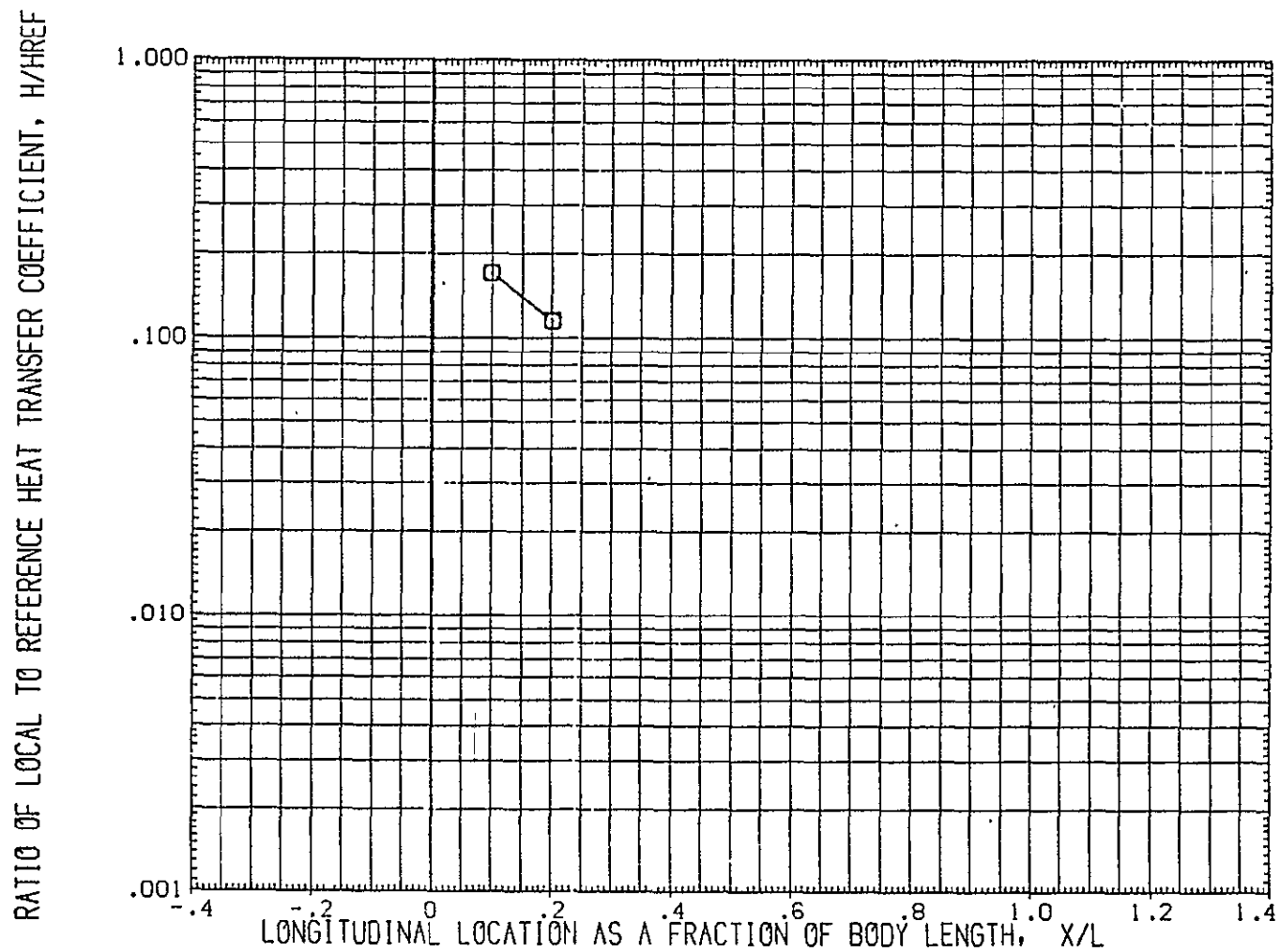


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER $\alpha=30$
MACH = 12.100 HAW/HT= 1.000 PHI = 30.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA
(EUGB11)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .254	30.000	.000
(JUGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .963	30.000	.000

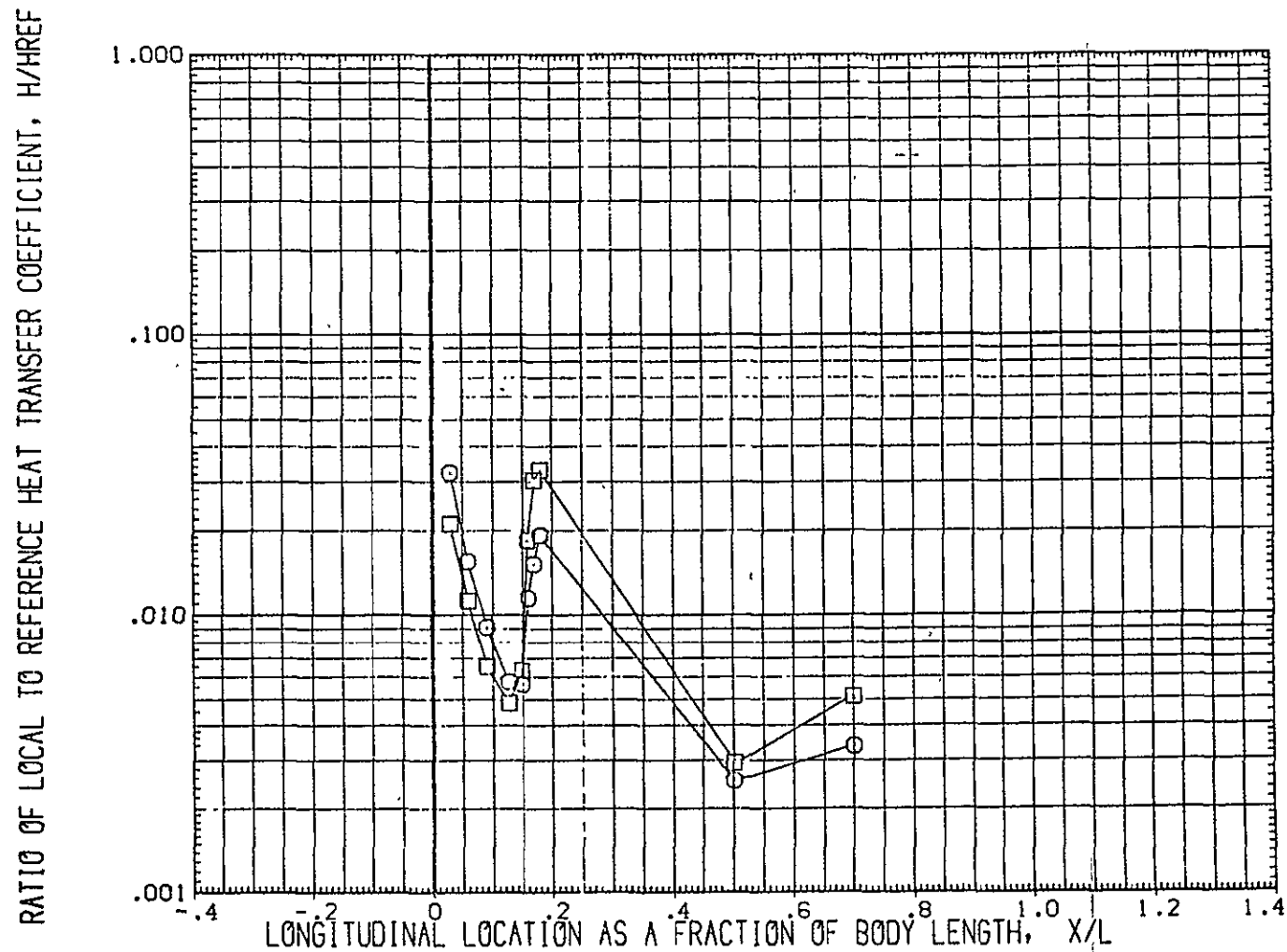


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= 1.000 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB11)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .046	30.000	.000
(UGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .245	30.000	.000

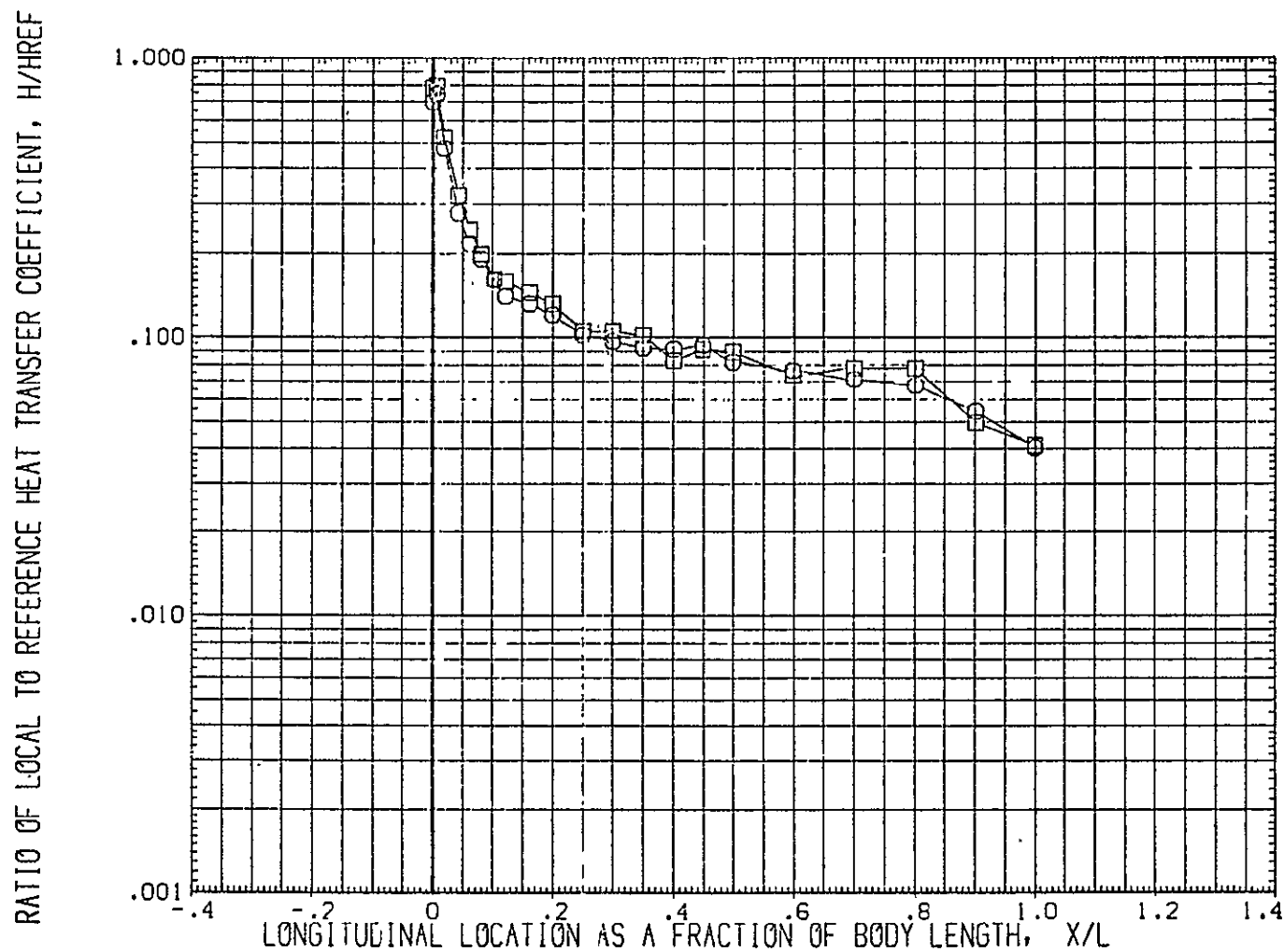


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= .850 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB11)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .046	30.000	.000
(JUGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .245	30.000	.000

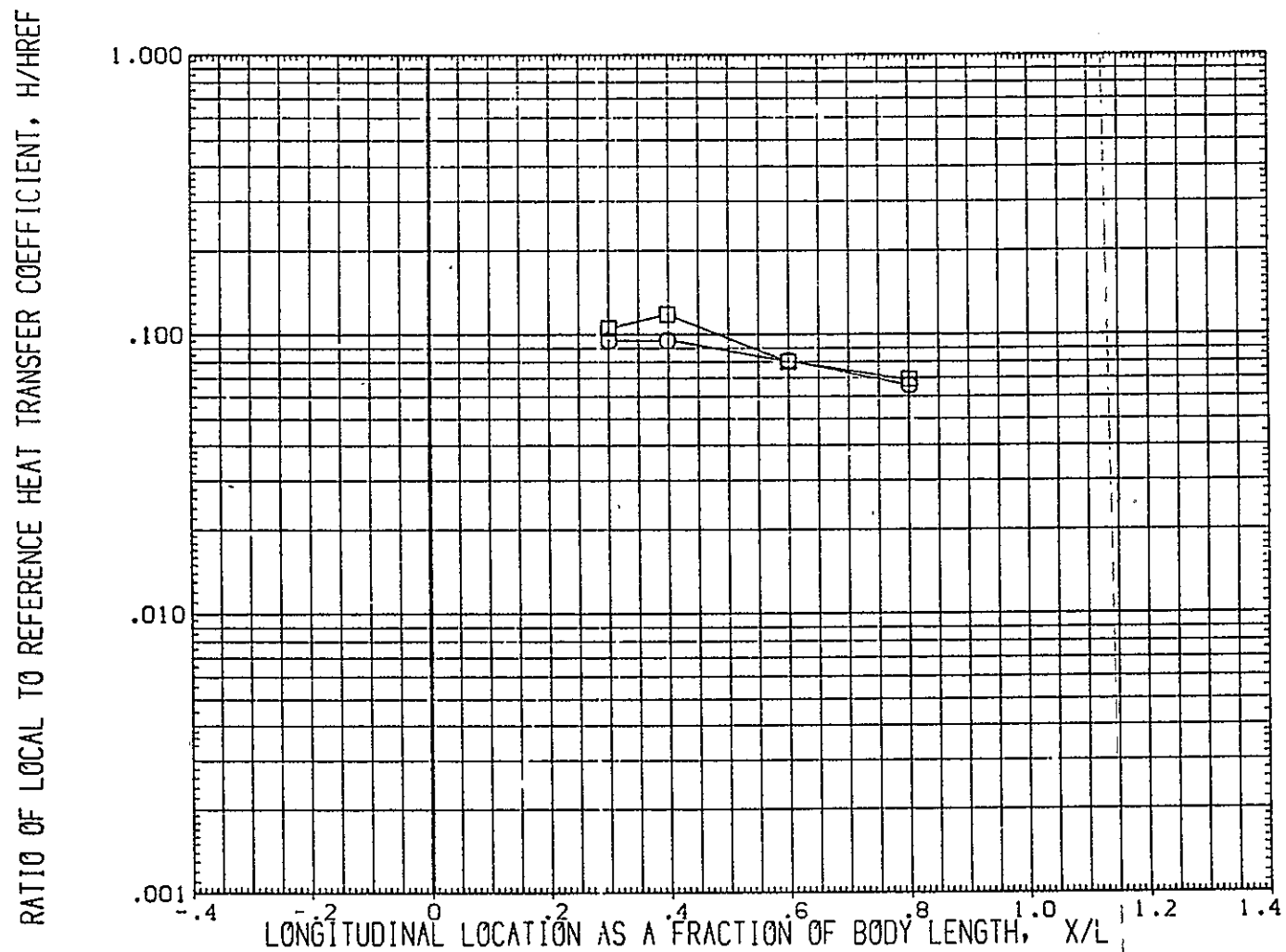


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= .850 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB11)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .046	30.000	.000
(IUGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .245	30.000	.000

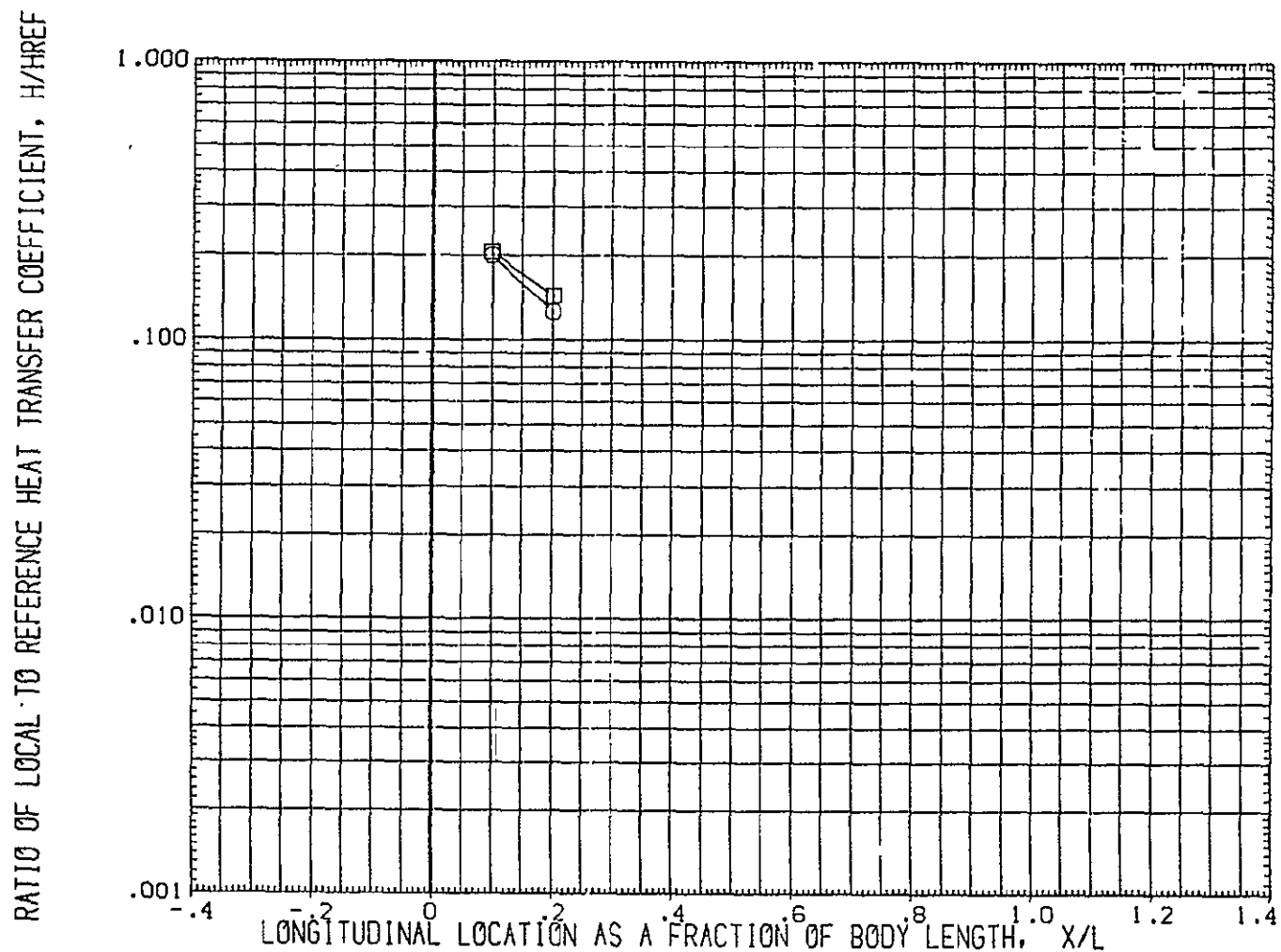


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30
MACH = 15.880 HAW/HT= .850 PHI = 30.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB11)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE .046	30.000	.000
(1UGB16)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE .245	30.000	.000

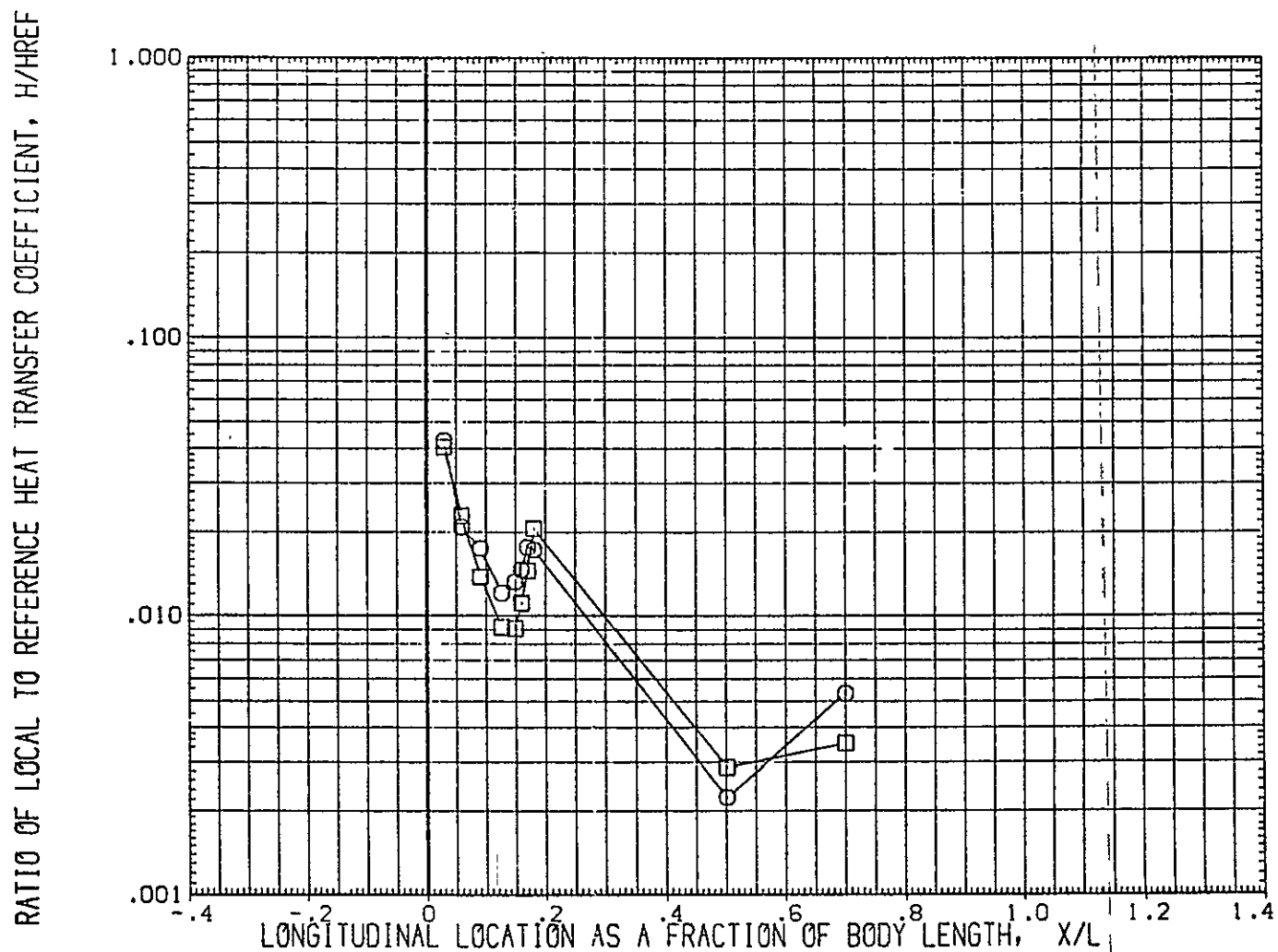


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= .850 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGB11)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.046	30.000	.000
(1UGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.245	30.000	.000

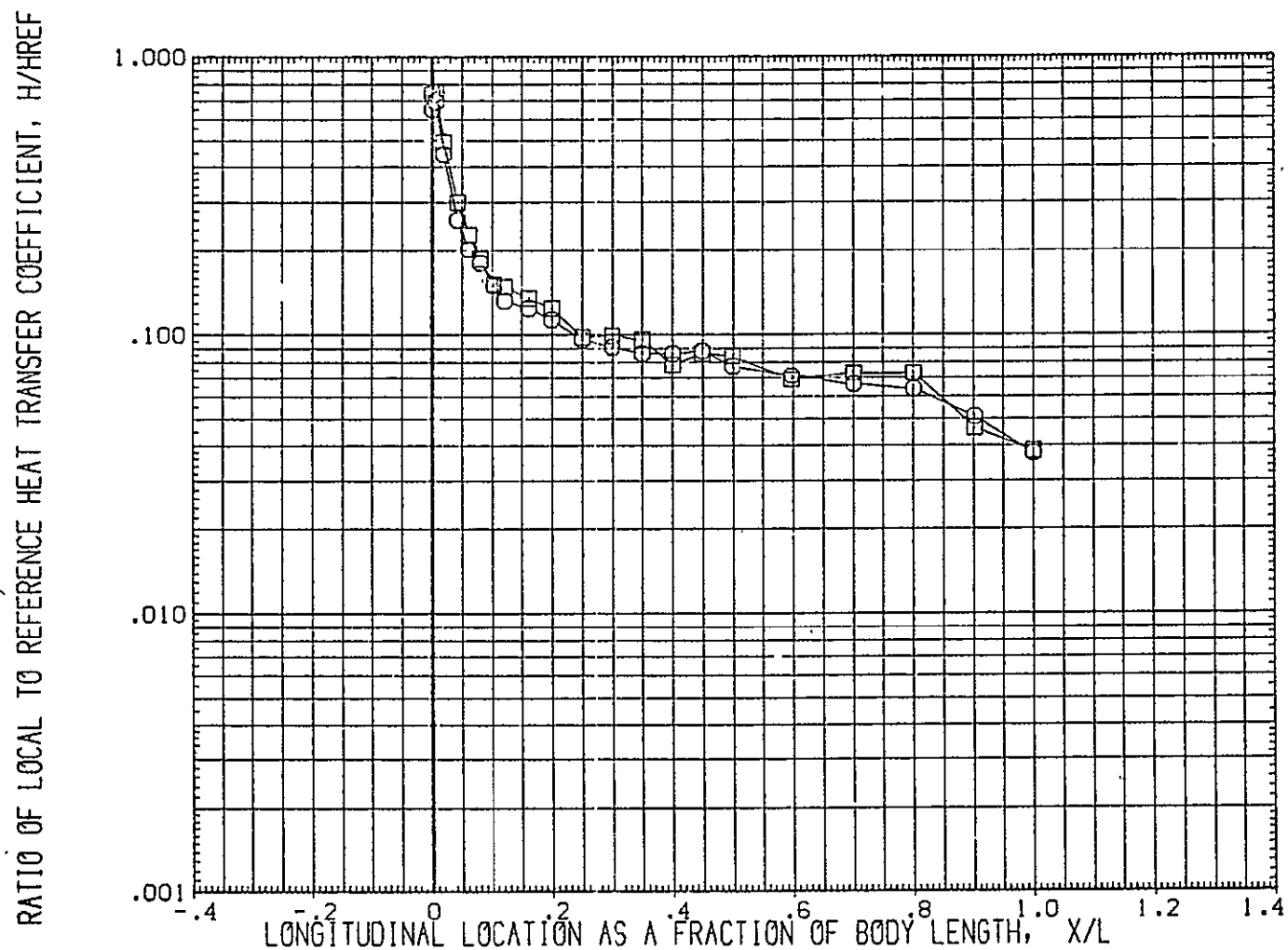


FIG:30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= .900 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGB11)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	.015	30.000	.000
(IUGB16)	OH12/1421 (CAL HST 173-100) 37 0	FUSELAGE	.245	30.000	.000

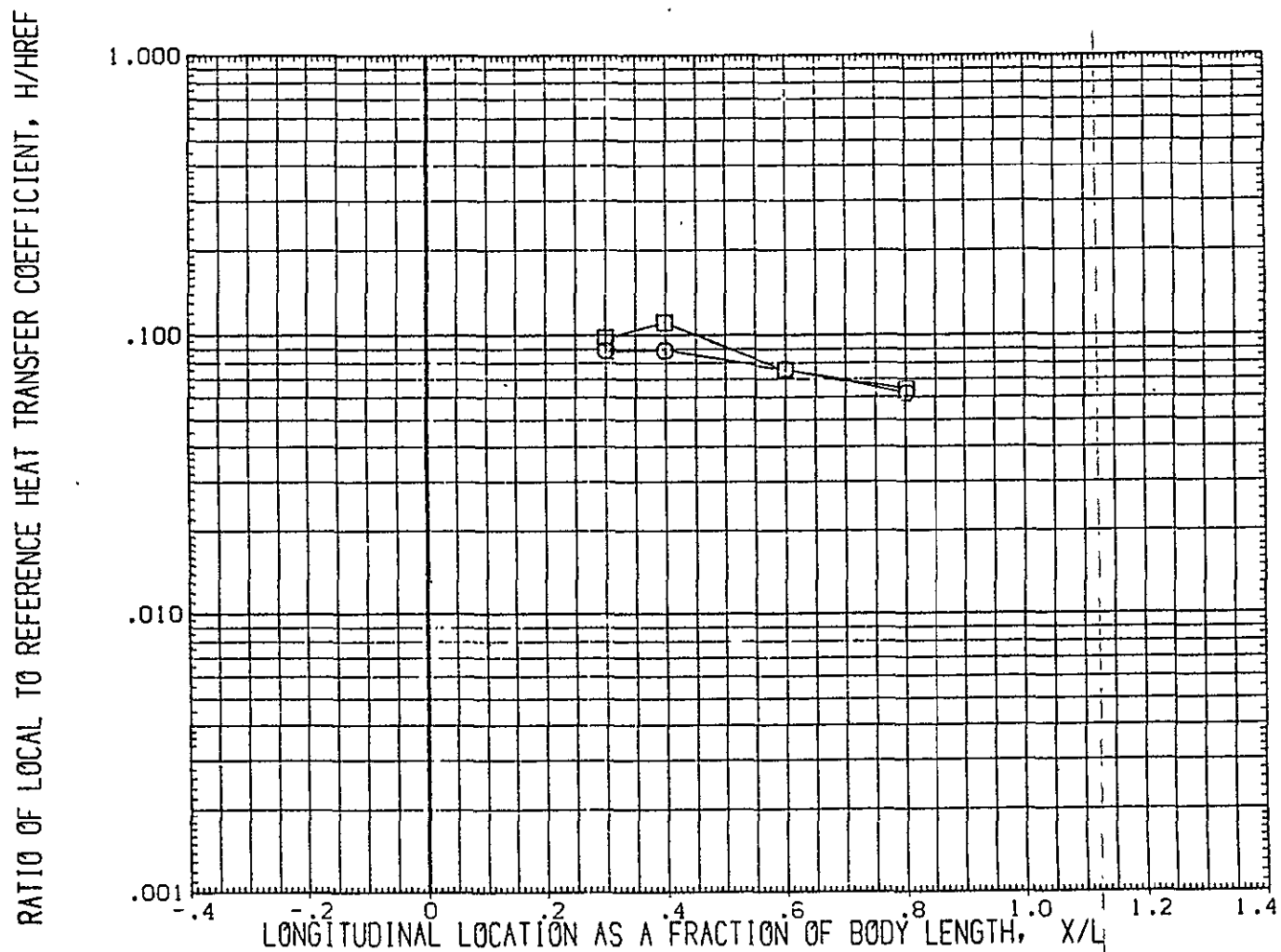


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= .900 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION		RN/L	ALPHA	BETA	
(FUGB11)	OH12/1H21 (CAL HST 173-100)	37 0	FUSELAGE	.046	30.000	.000
(1UGB16)	OH12/1H21 (CAL HST 173-100)	37 0	FUSELAGE	.245	30.000	.000

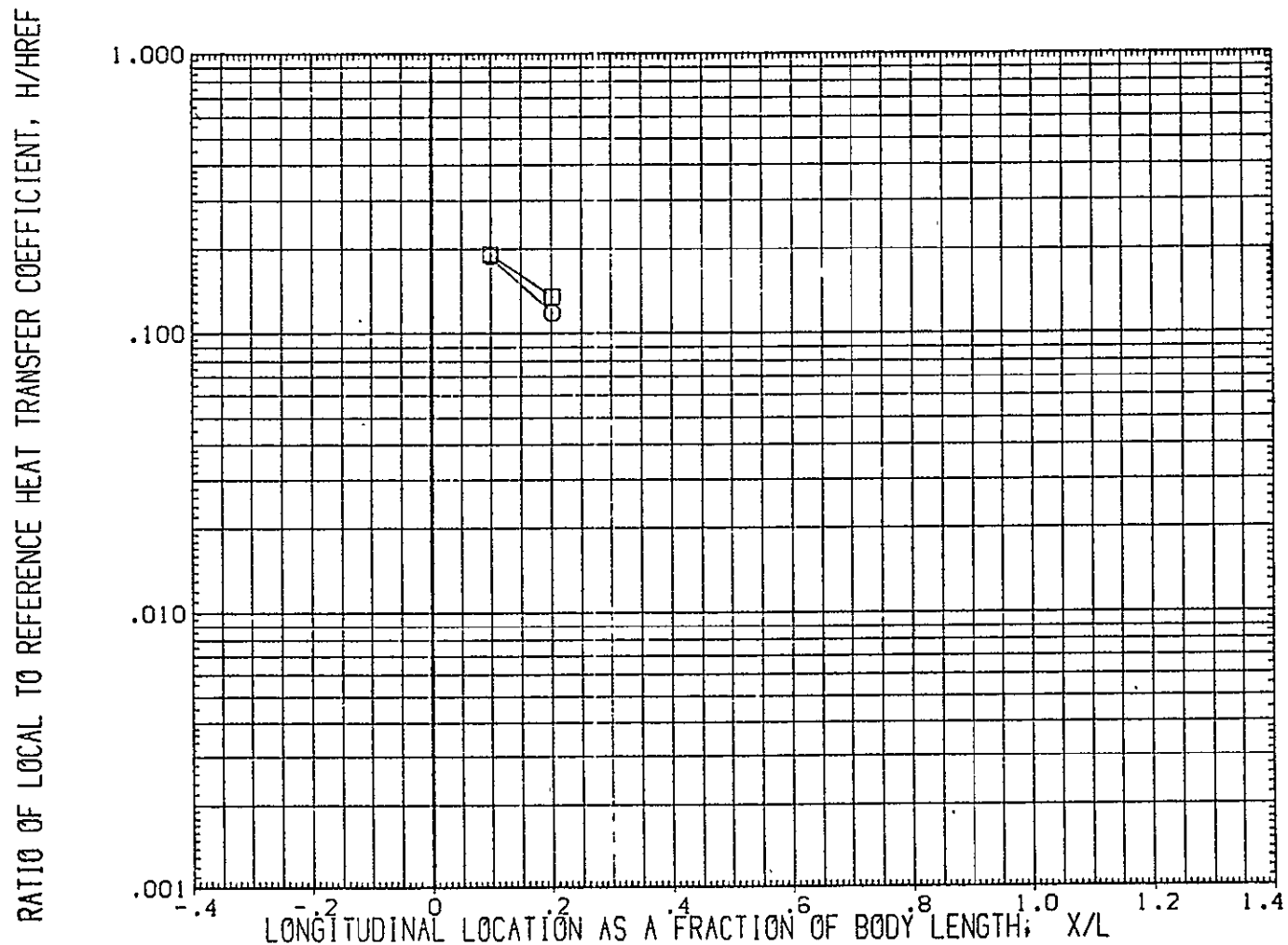


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 15.890 HAW/HT = .900 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGB11)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.046	30.000	.000
(FUGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.245	30.000	.000

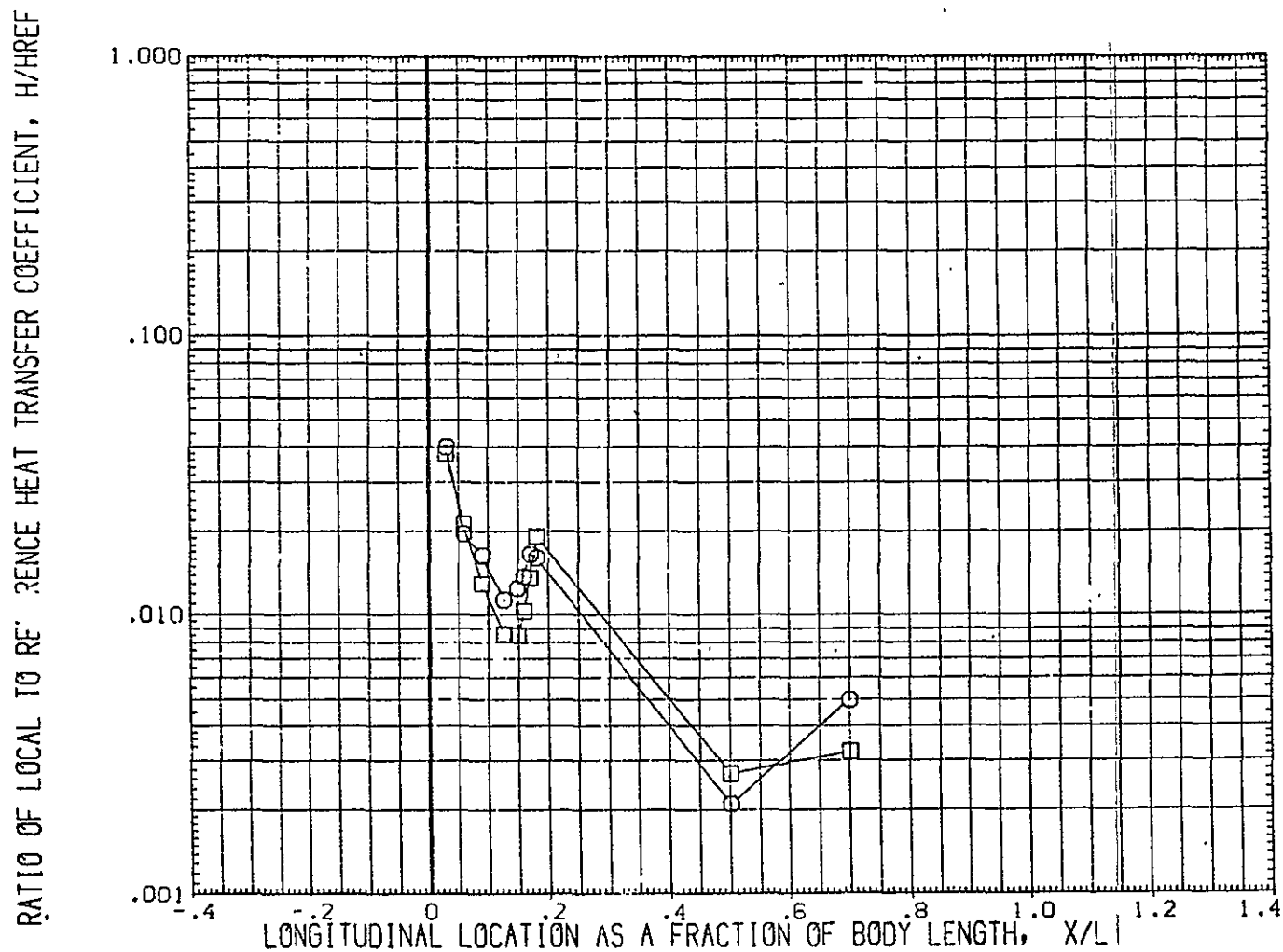


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/PT= .900 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB11)	OH12/1H21 (CAL MST 173-100) 37 0	FUSELAGE .046	30.000	.000
(FUGB16)	OH12/1H21 (CAL MST 173-100) 37 0	FUSELAGE .245	30.000	.000

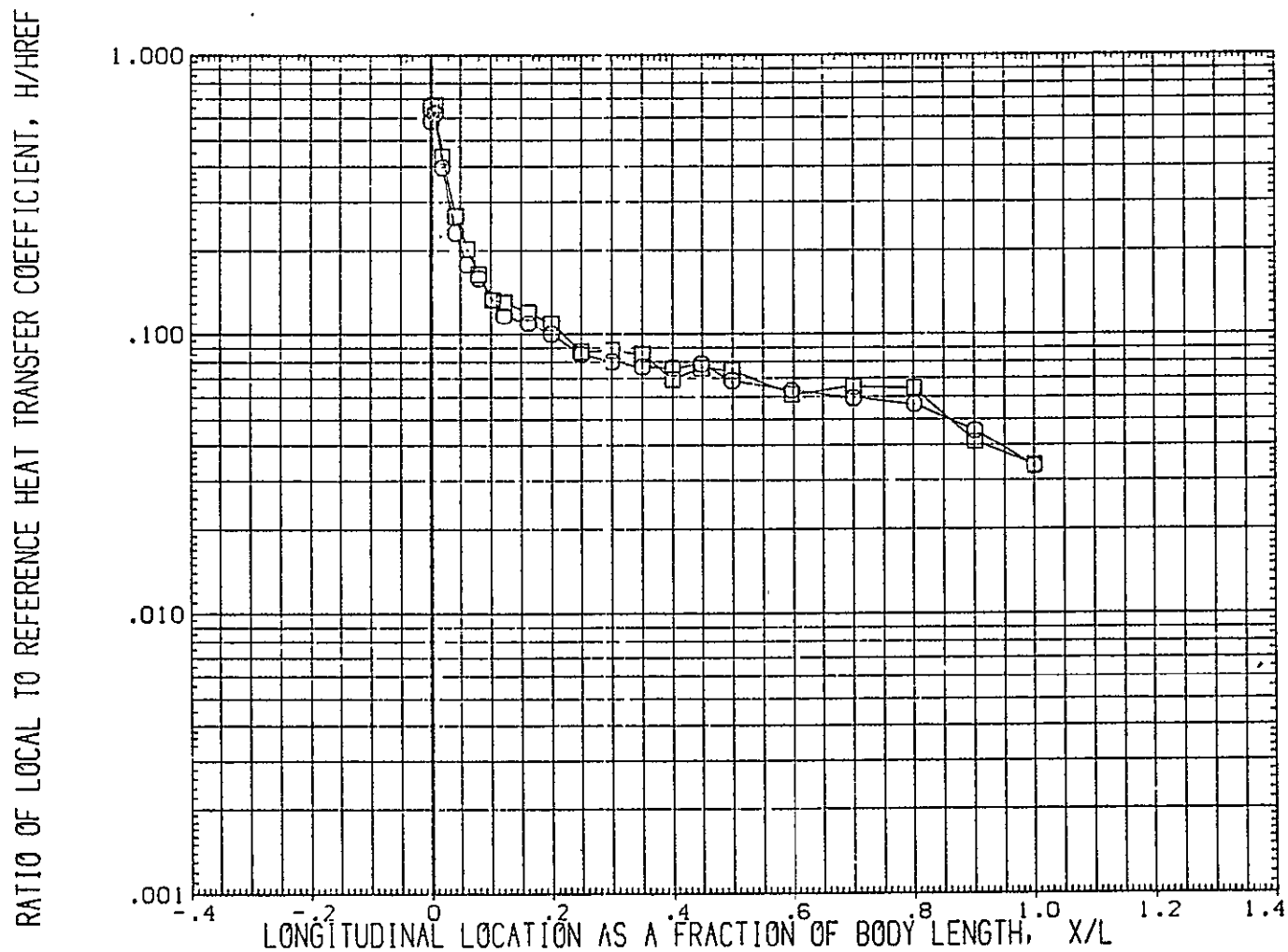


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= 1.000 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGB11)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.046	30.000	.000
(1UGB16)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.245	30.000	.000

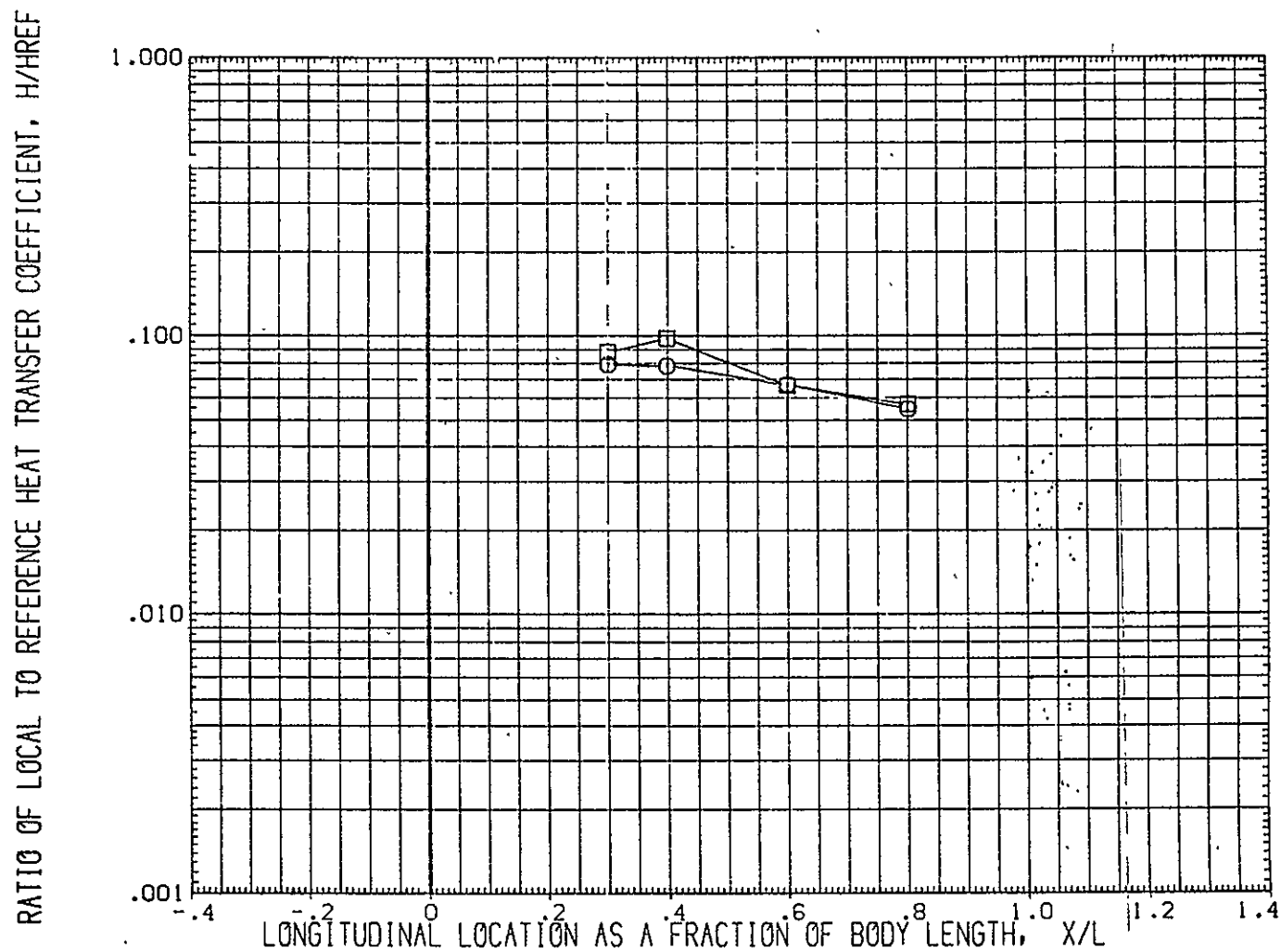


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= 1.000 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB11)	OH:2/142) (CAL HST 173-100) 37 0	FUSELAGE .046	30.000	.000
(FUGB16)	OH:2/142) (CAL HST 173-100) 37 0	FUSELAGE .245	30.000	.000

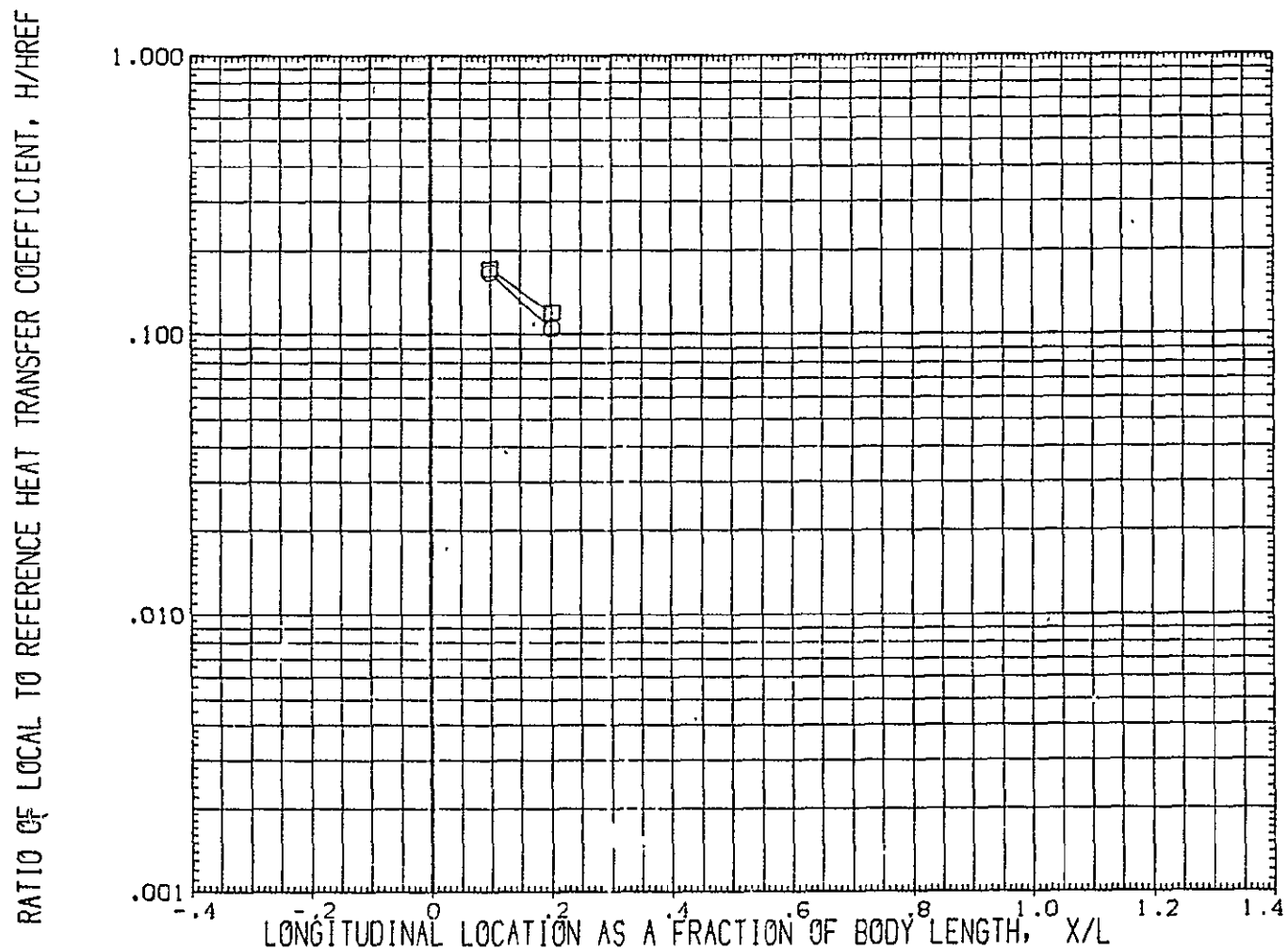


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH = 15.980 HAW/HT= 1.000 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB11)	OH(2/1H2) (CAL HST 173-100) 37 0	FUSELAGE .046	30.000	.000
(FUGB16)	OH(2/1H2) (CAL HST 173-100) 37 0	FUSELAGE .245	30.000	.000

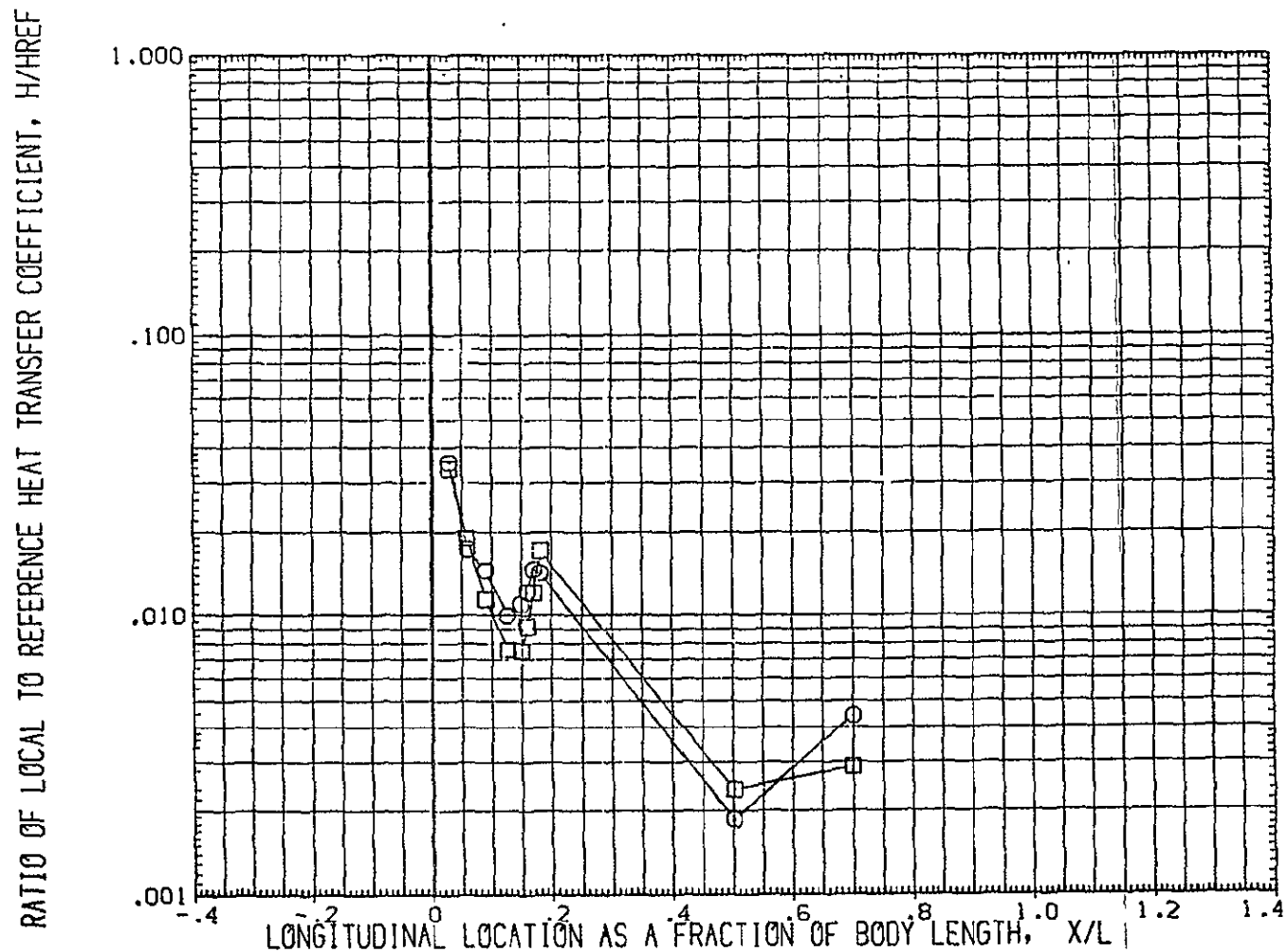


FIG.30 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=30

MACH. = 15.880 HAW/HT= 1.000 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.254	30.000	.000
(JUGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.963	30.000	.000

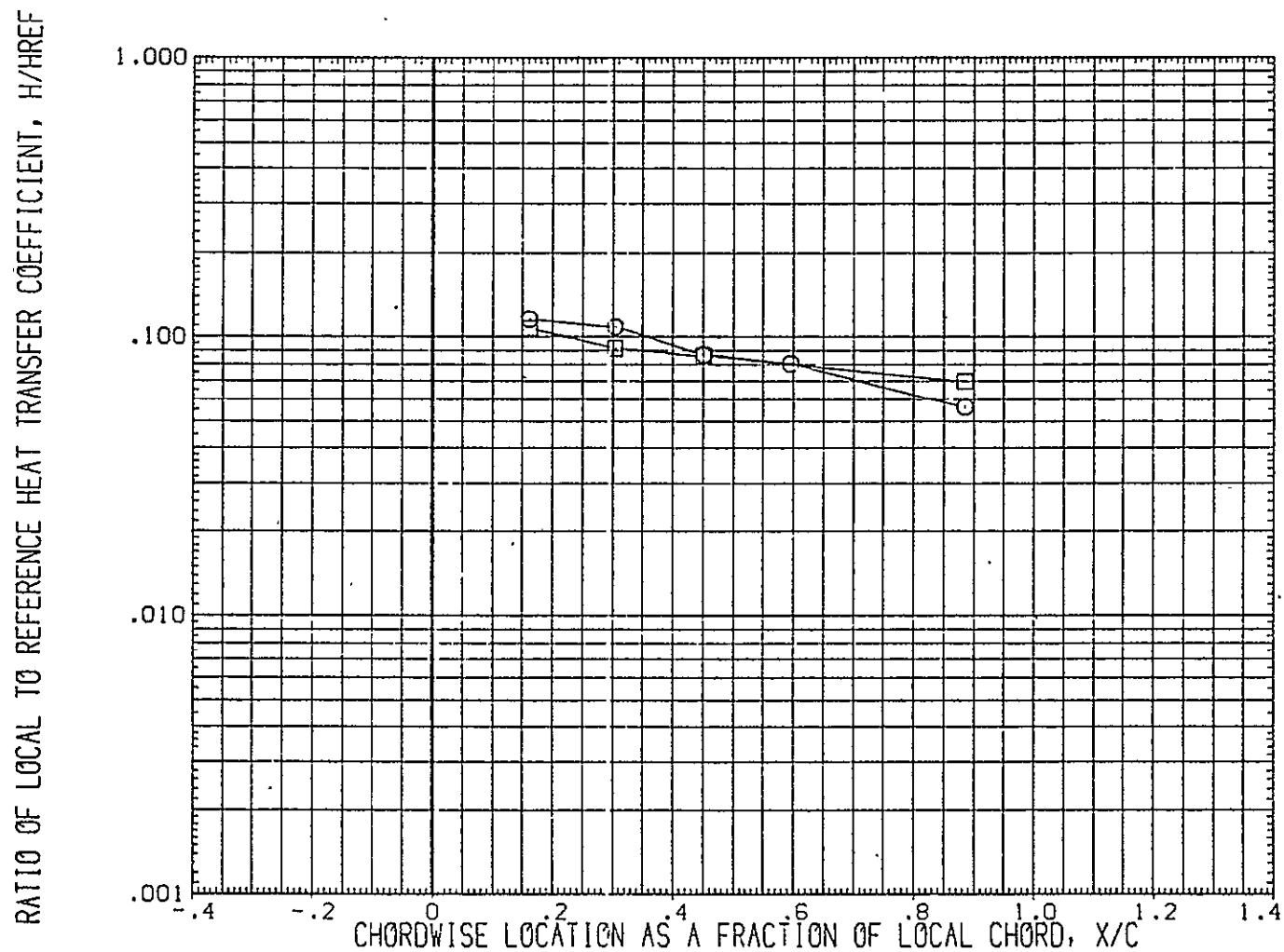


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= .850 2Y/B = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	Re/L	ALPHA	BETA
(EUGW11)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.254	30.000	.000
(JUGW16)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.963	30.000	.000

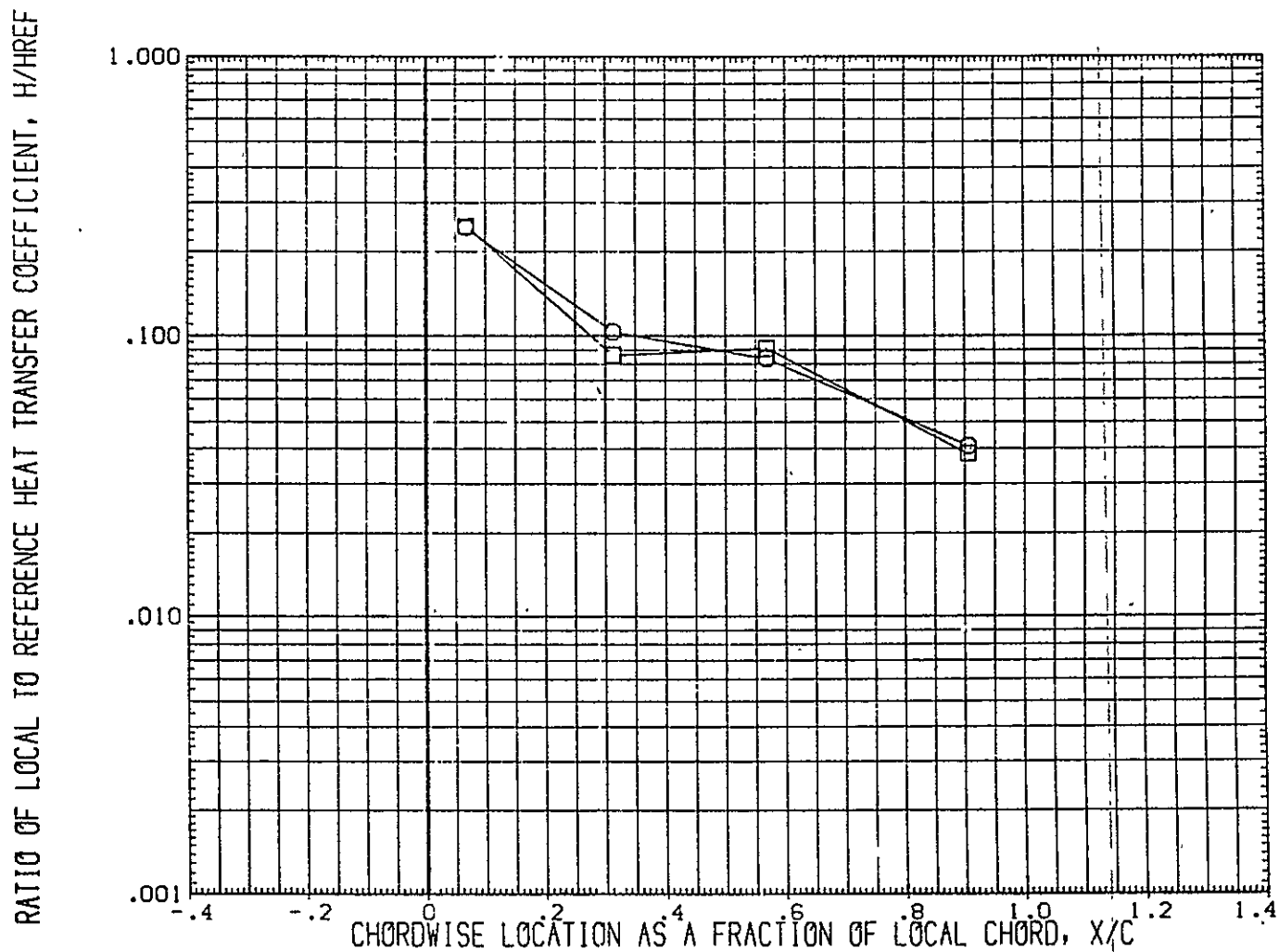


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= .850 2Y/B = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.254	30.000	.000
(JUGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.963	30.000	.000

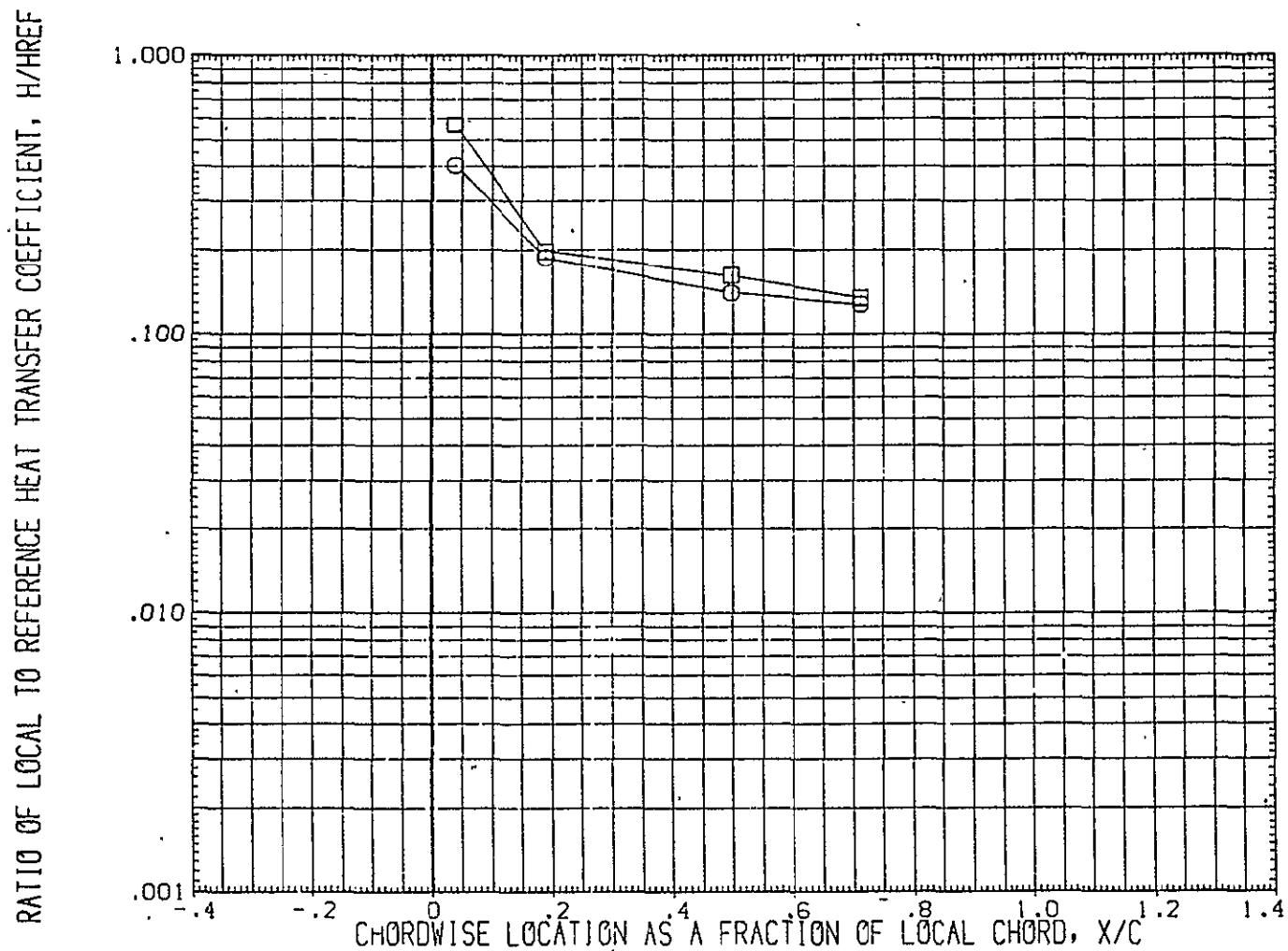


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT = .850 $2Y/B$ = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING	REYNOLDS NO.	ALPHA	BETA
(EUGW11)	OH12/1H21 (CAL HST 173-100)	37 0	WING U.S.	.254	30.000	.000
(JUGW16)	OH12/1H21 (CAL HST 173-100)	37 0	WING U.S.	.963	30.000	.000

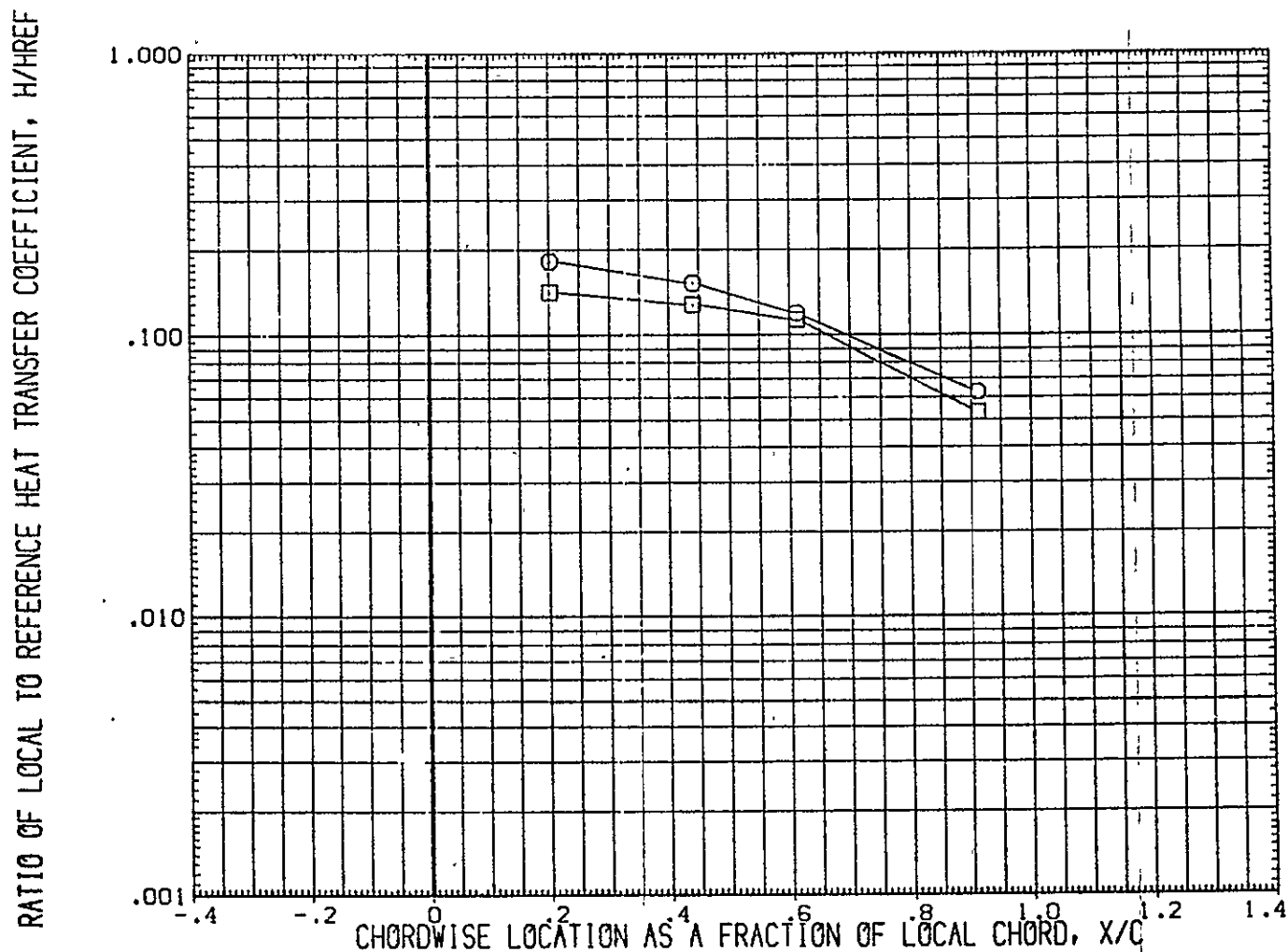


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= .850 2Y/B = .600

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
{EUGW11}	OH12/1421 (CAL HST 173-100) 37 0	WING L.S.	.254	30.000	.000
{JUGW16}	OH12/1421 (CAL PST 173-100) 37 0	WING L.S.	.963	30.000	.000

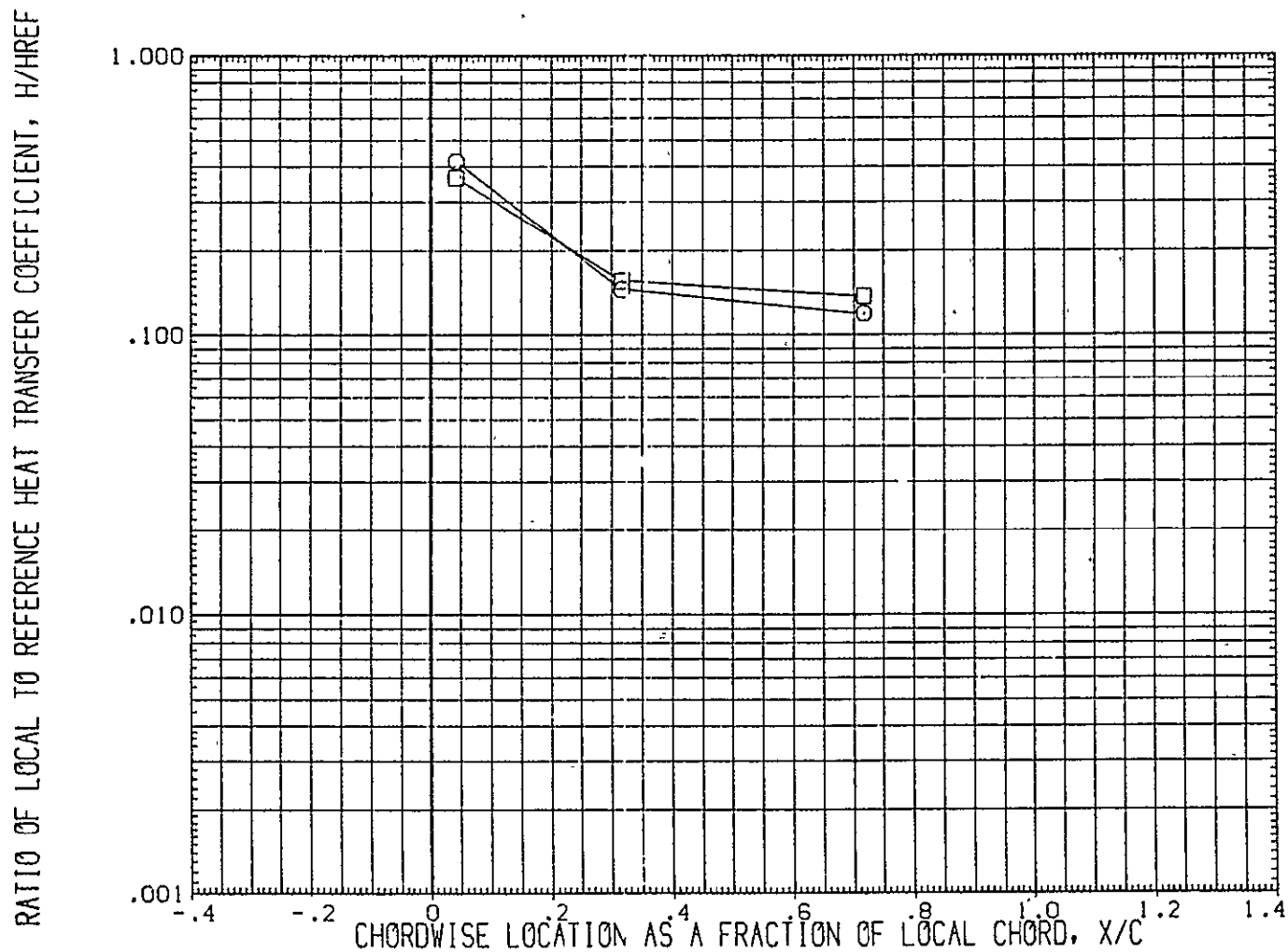


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT = .850 2Y/B = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	RN/L	ALPHA	BETA
(EUGW11)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.254	30.000	.000
(JUGW16)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.963	30.000	.000

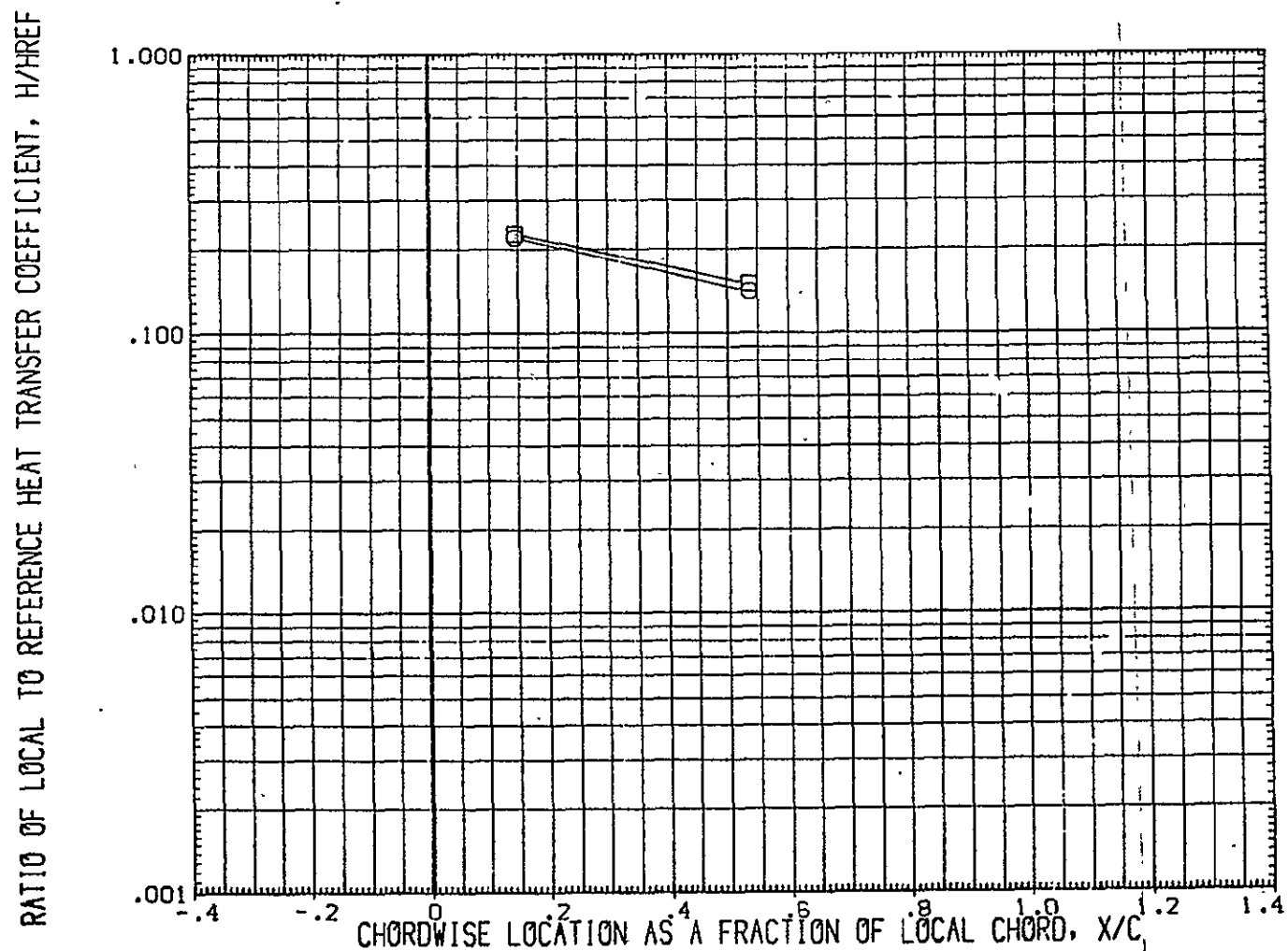


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30
MACH = 12.100 HAW/HT= .850 2Y/B = .950 PAGE 912

DATA SET SYMBOL	CONFIGURATION DESCRIPTION		RN/L	ALPHA	BETA	
(EUGW11)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.254	30.000	.000
(JUGW16)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.963	30.000	.000

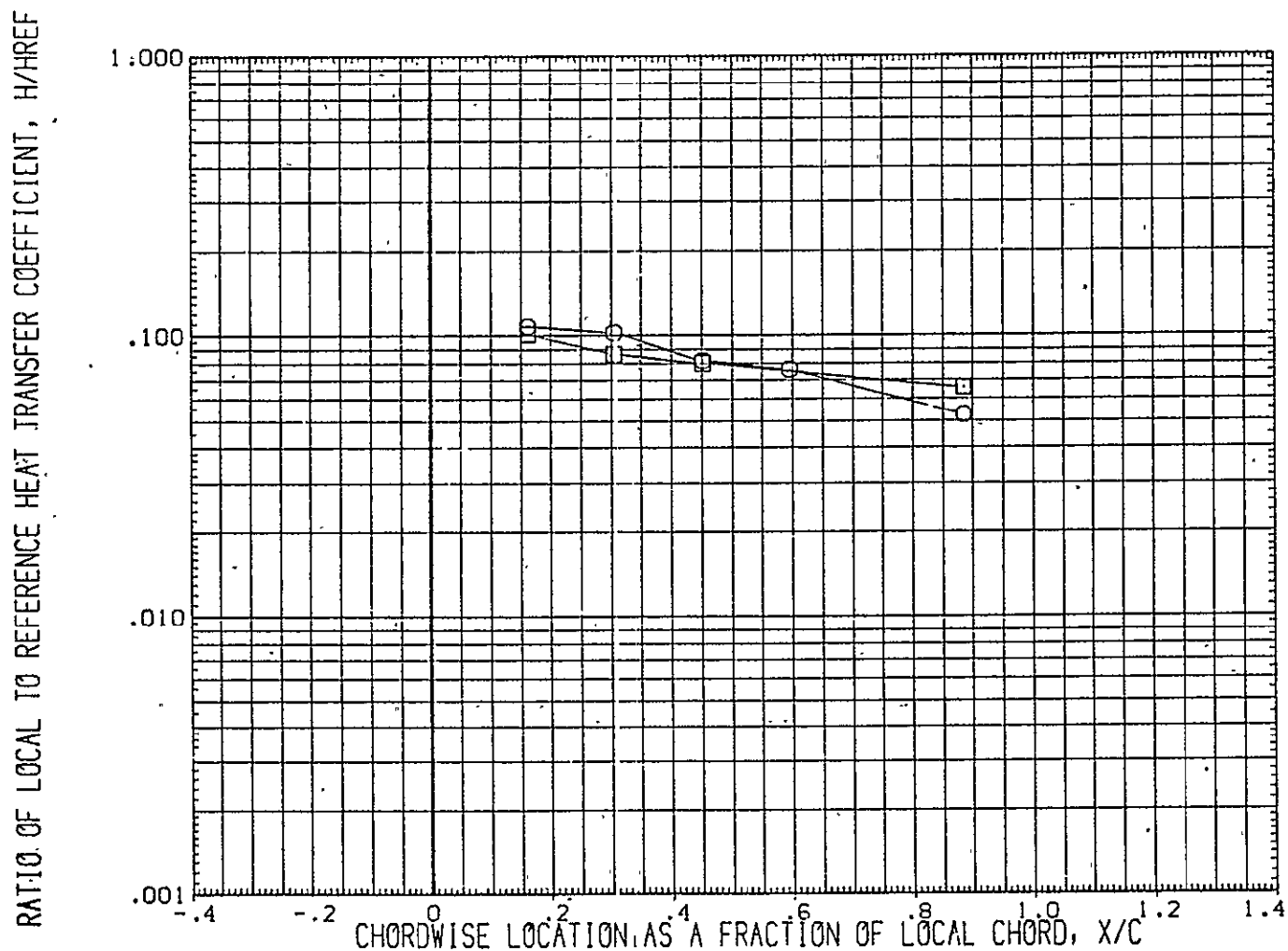


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT = .900 2Y/B = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA	
(EUGW11)	OH12/1M2: (CAL HST 173-100) 37 0	WING L.S.	.254	30.000	.000
(JUGW16)	OH12/1M2: (CAL HST 173-100) 37 0	WING L.S.	.953	30.000	.000

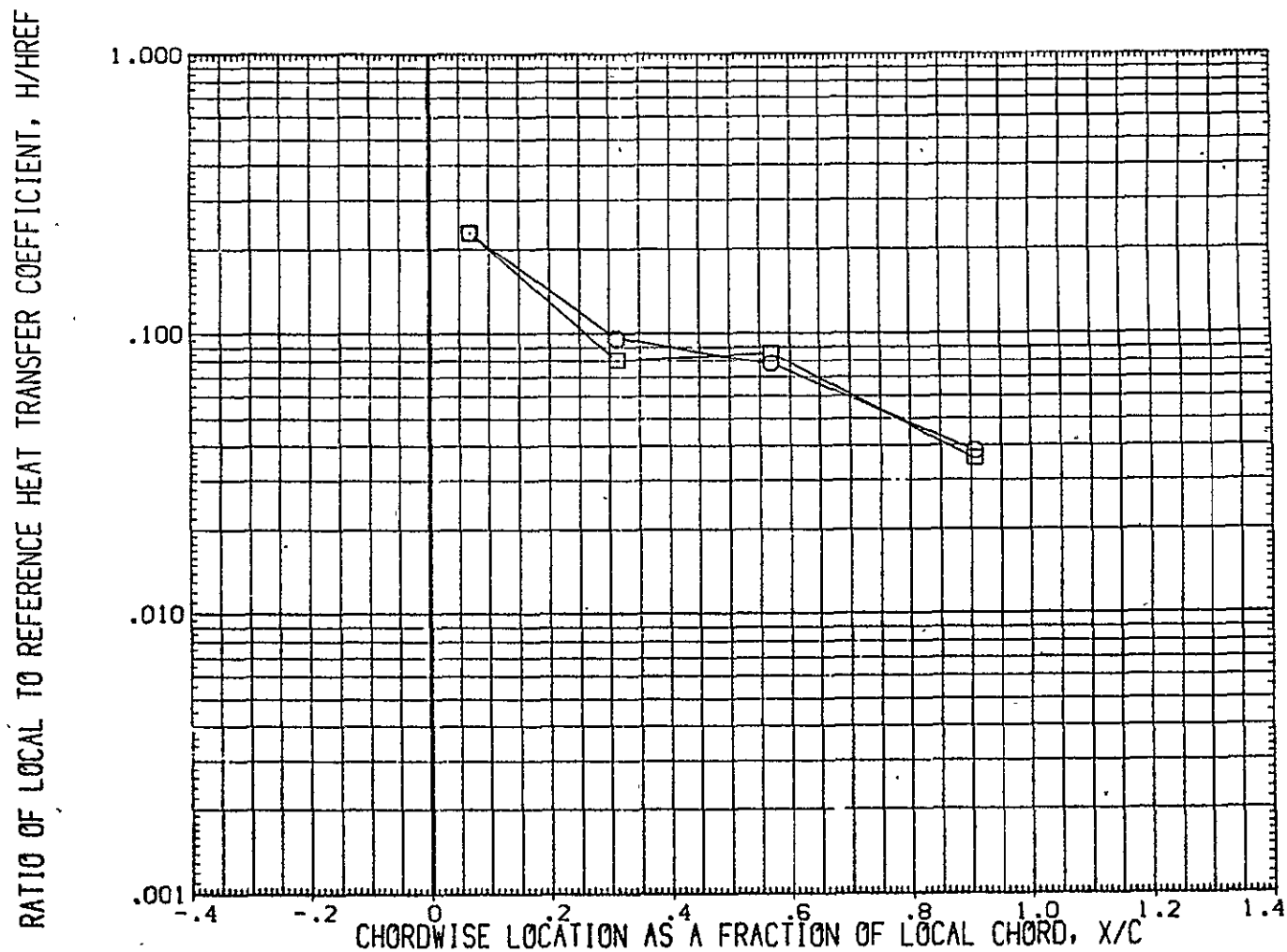


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30
MACH = 12.100 HAW/HT= .900 2Y/B = .400 PAGE 914

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WING L.S.	RN/L	ALPHA	BETA
(EUGW11)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.254	30.000	.000
(JUGW16)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.963	30.000	.000

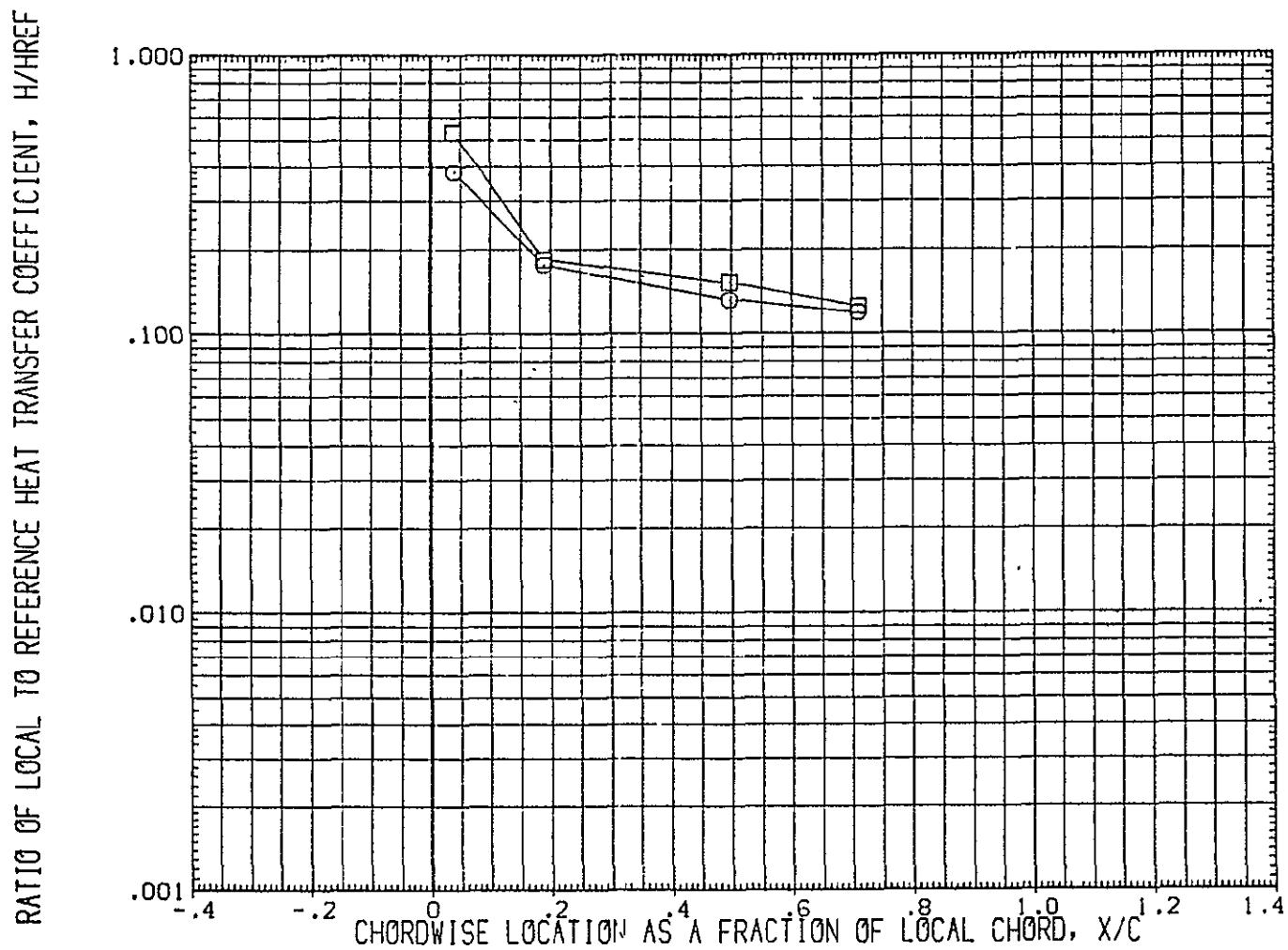




FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT = .900 2Y/B = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW11) 	OH12/H21 (CAL HST 173-100) 37 0	WING L.S. .254	30.000	.000
(JUGW16) 	OH12/H21 (CAL HST 173-100) 37 0	WING L.S. .953	30.000	.000

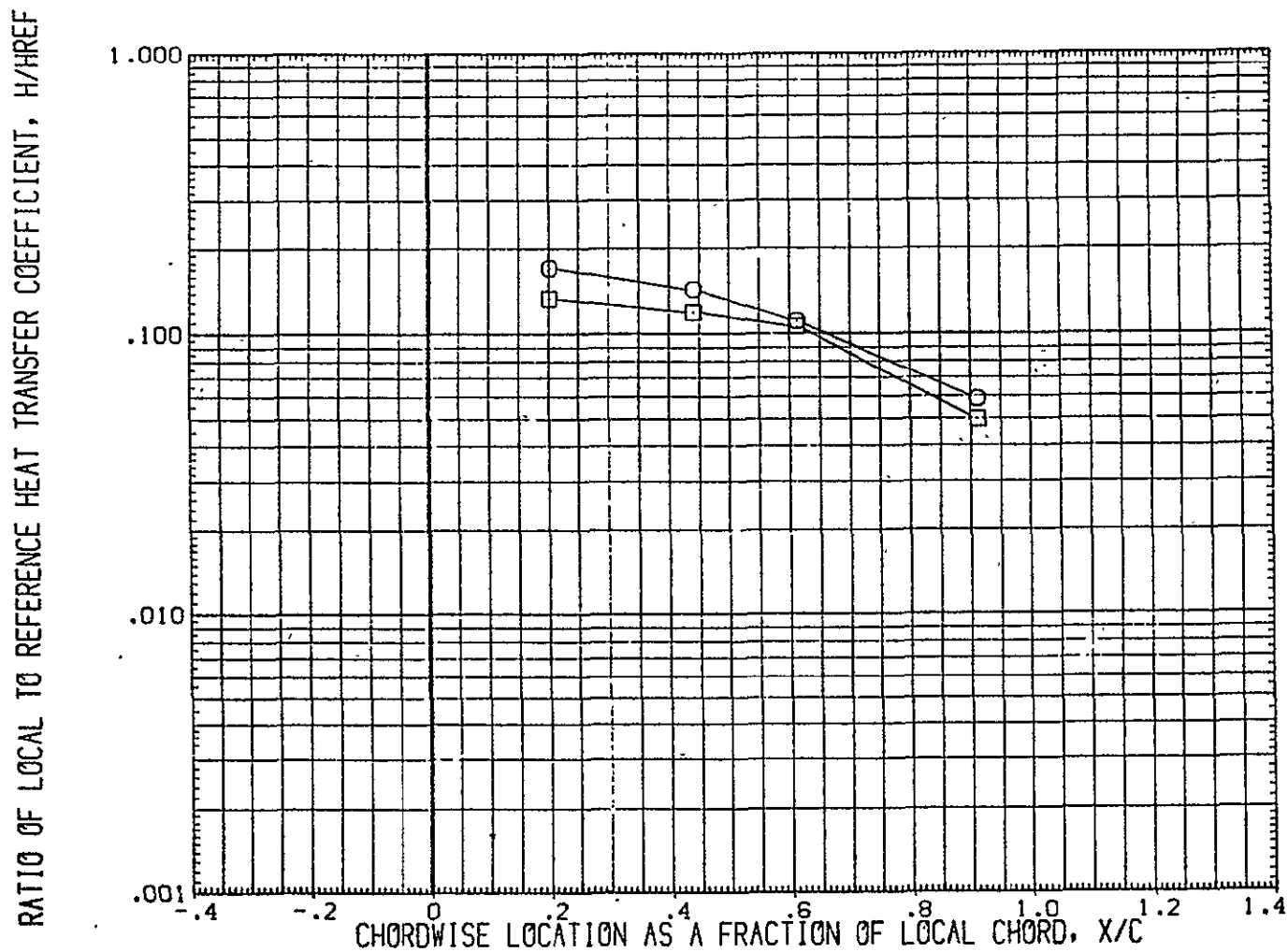


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= .900 2Y/B = .600

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	RY/L	ALPHA	BETA
(EUGW11)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.254	30.000	.000
(JUGW16)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.963	30.000	.000

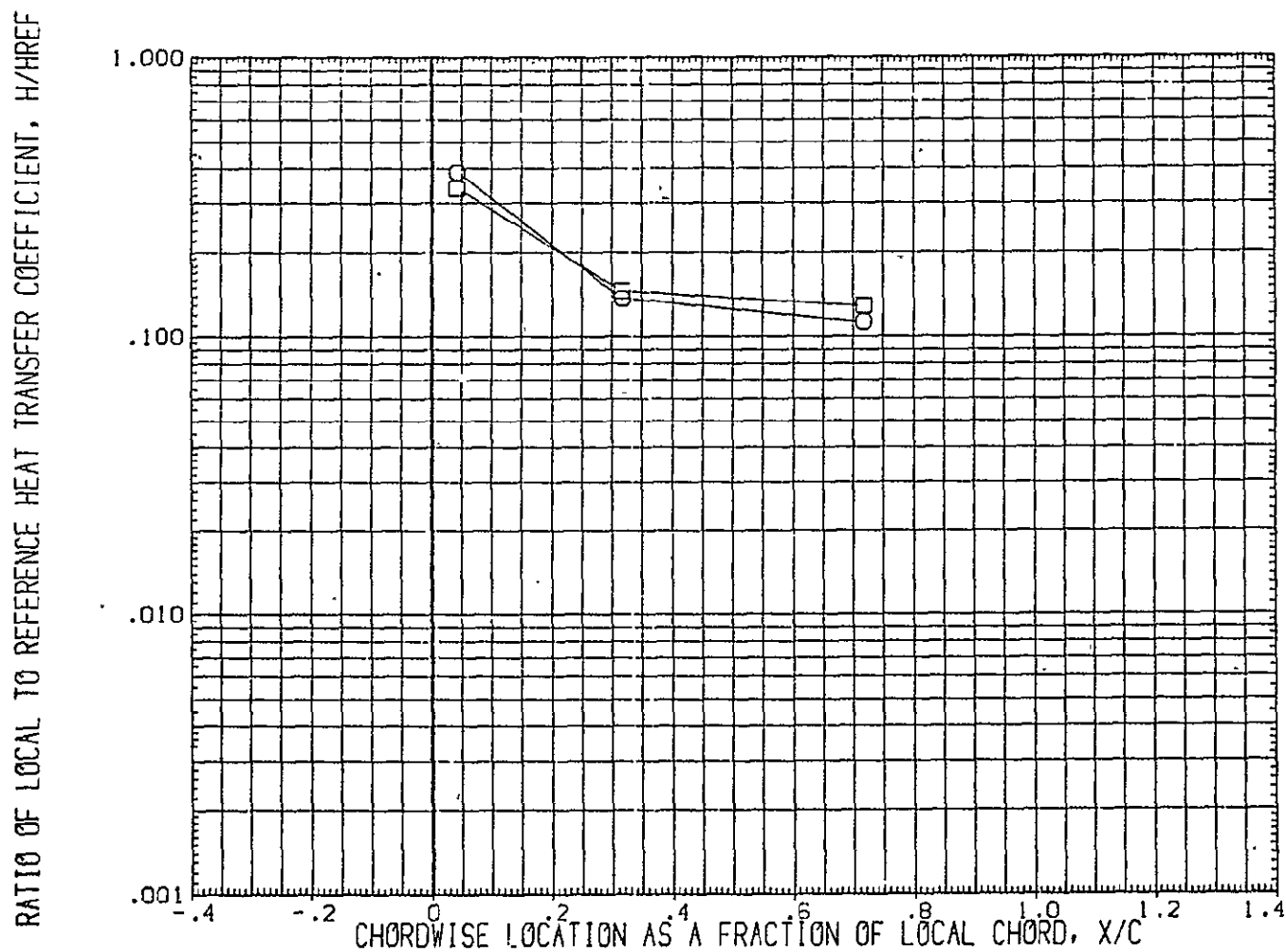


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= .900 2Y/B = .750

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(EUGV11)	0M12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.254	30.000	.000
(JUGV16)	0M12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.963	30.000	.000

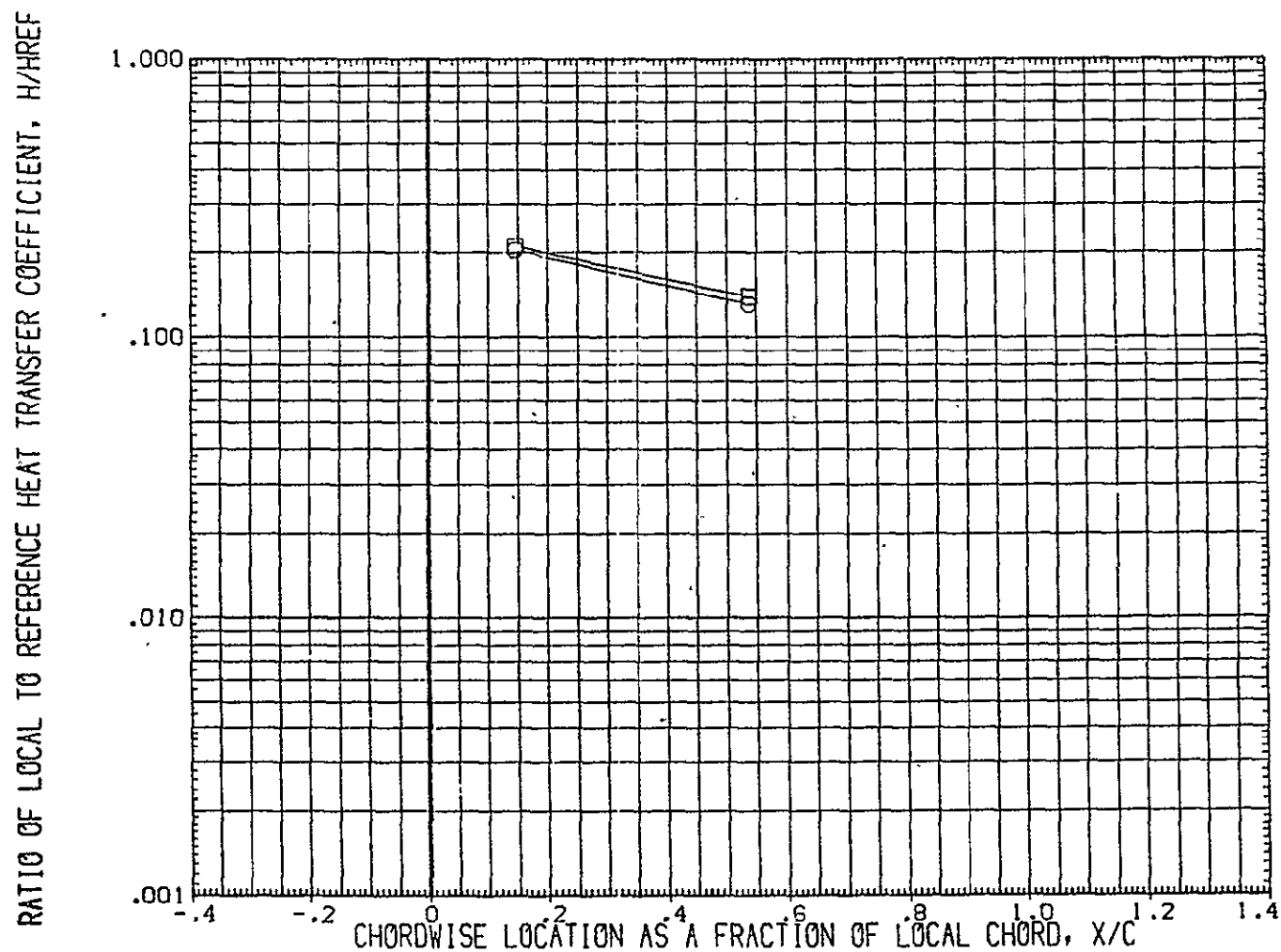


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= .900 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.254	30.000	.000
(JUGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.963	30.000	.000

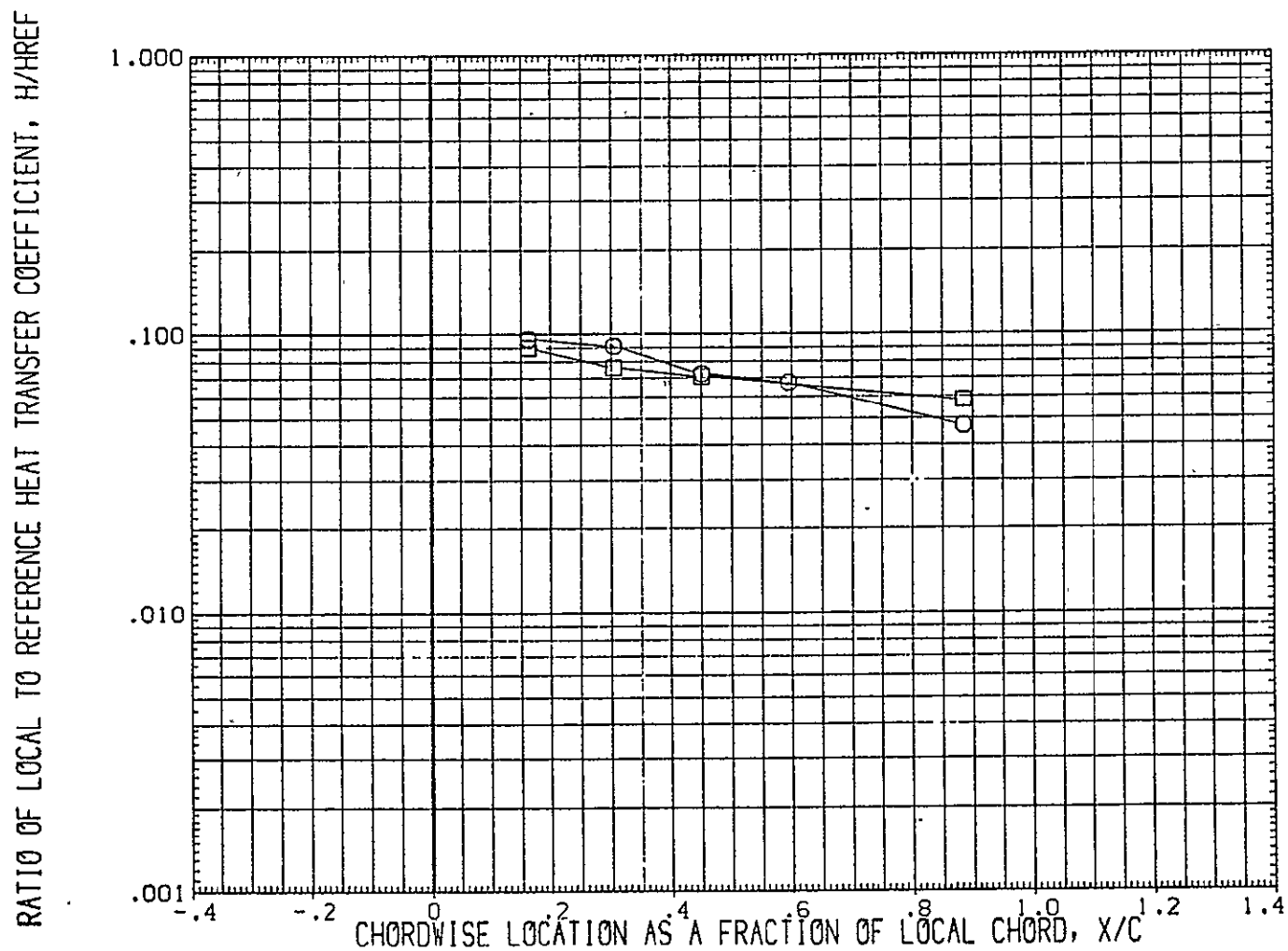


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30
MACH = 12.100 HAW/HT= 1.000 2Y/B = .250 PAGE 919

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA	
(EUGW11)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.254	30.000	.000
(JUGW16)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.963	30.000	.000

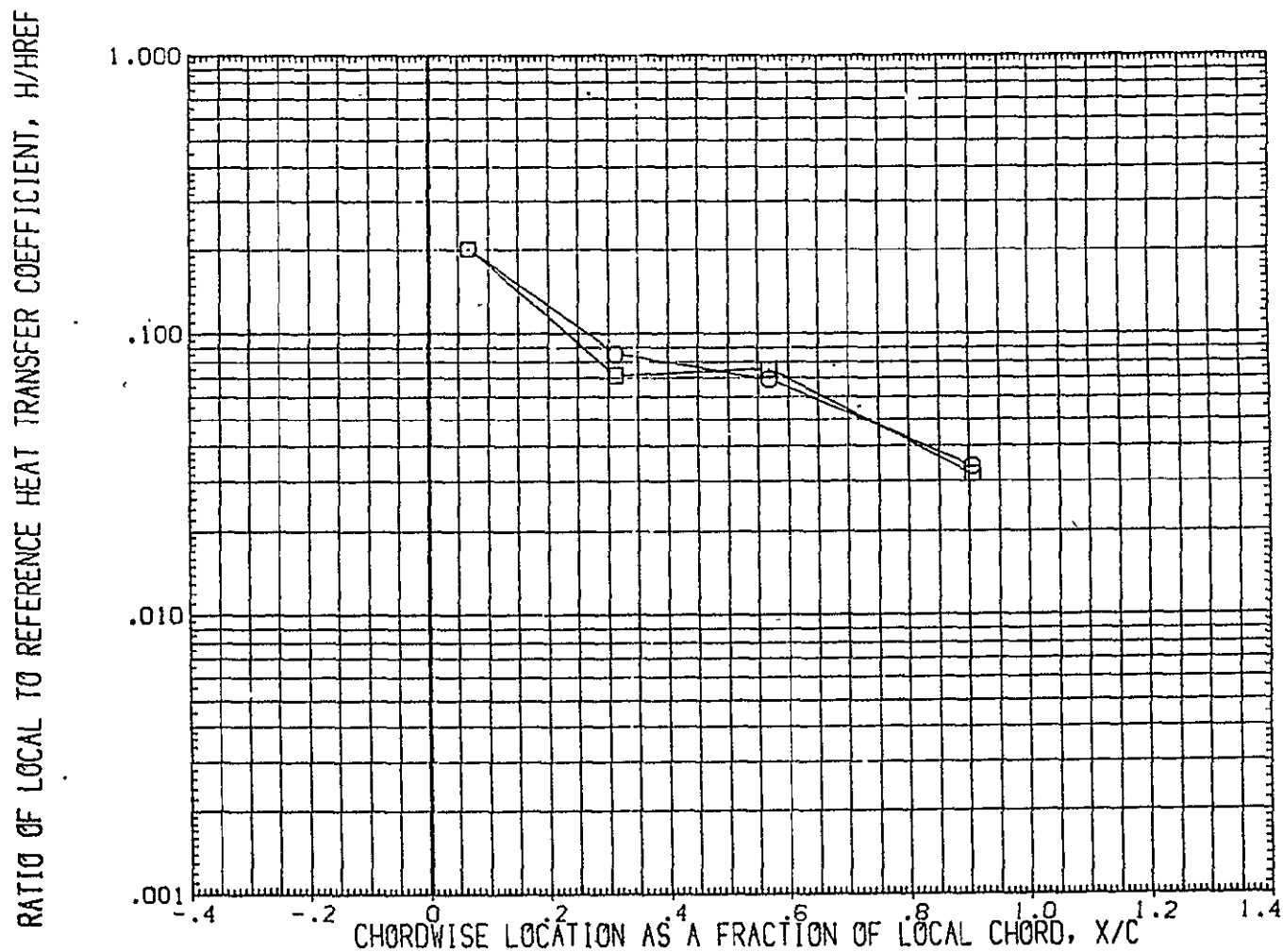


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= 1.000 2Y/B = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW11)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S. .254	30.000	.000
(JUGW16)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S. .963	30.000	.000

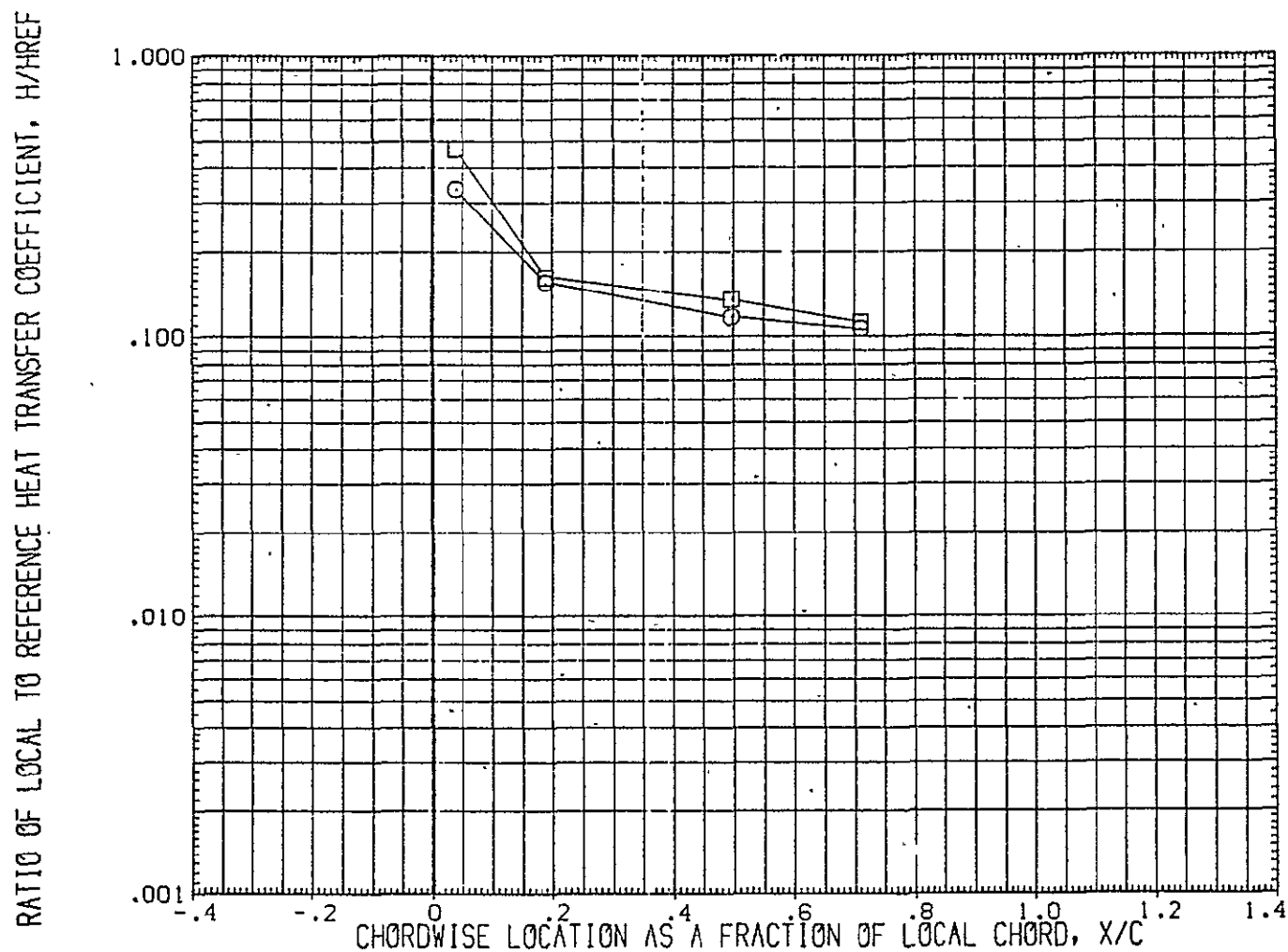


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= 1.000 2Y/B = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	RN/L	ALPHA	BETA
(EUGW11)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.254	30.000	.000
(JUGW16)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.963	30.000	.000

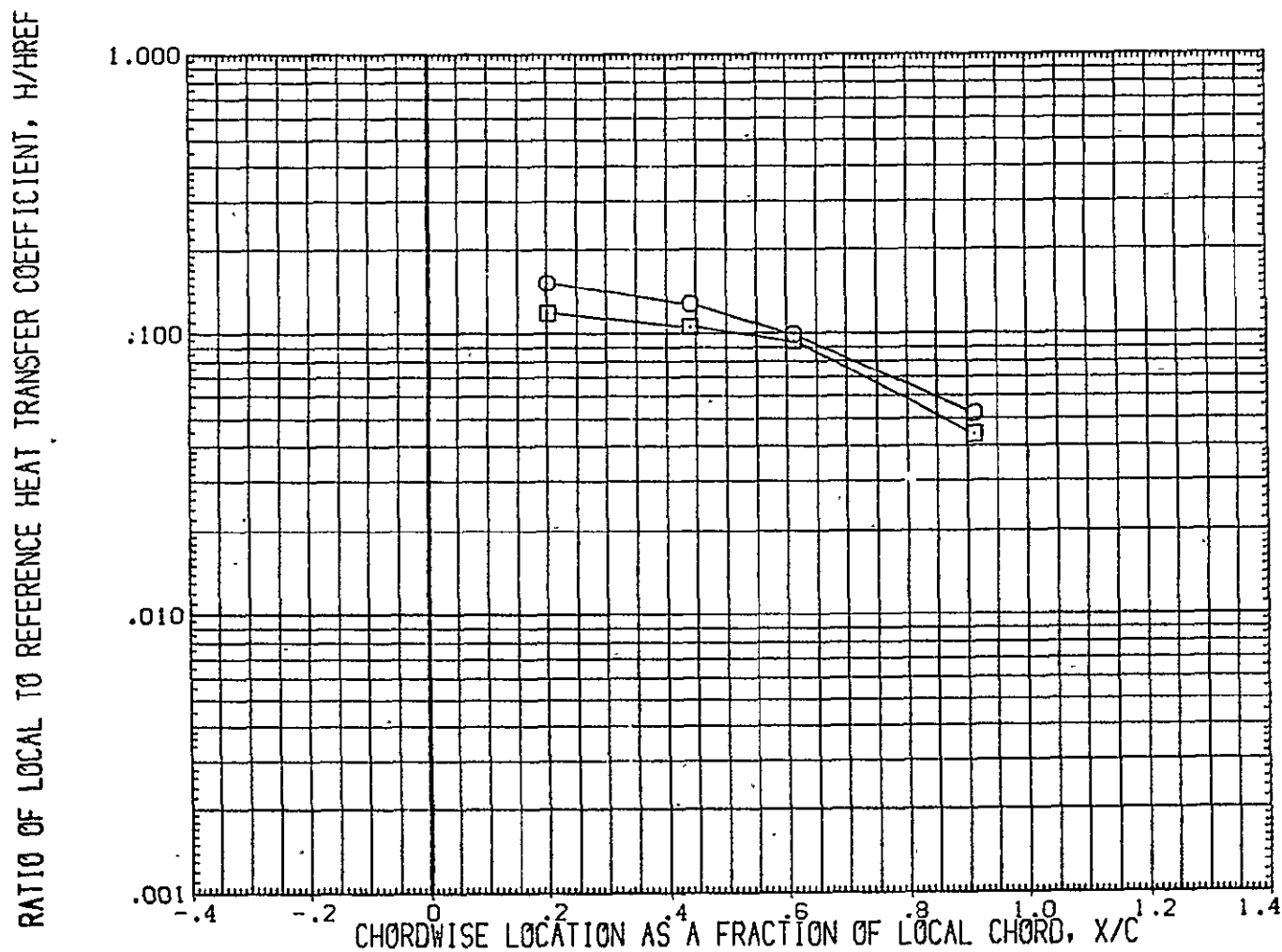


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= 1.000 2Y/B = .600

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGW11)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.254	30.000	.000
(JUGW16)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.963	30.000	.000

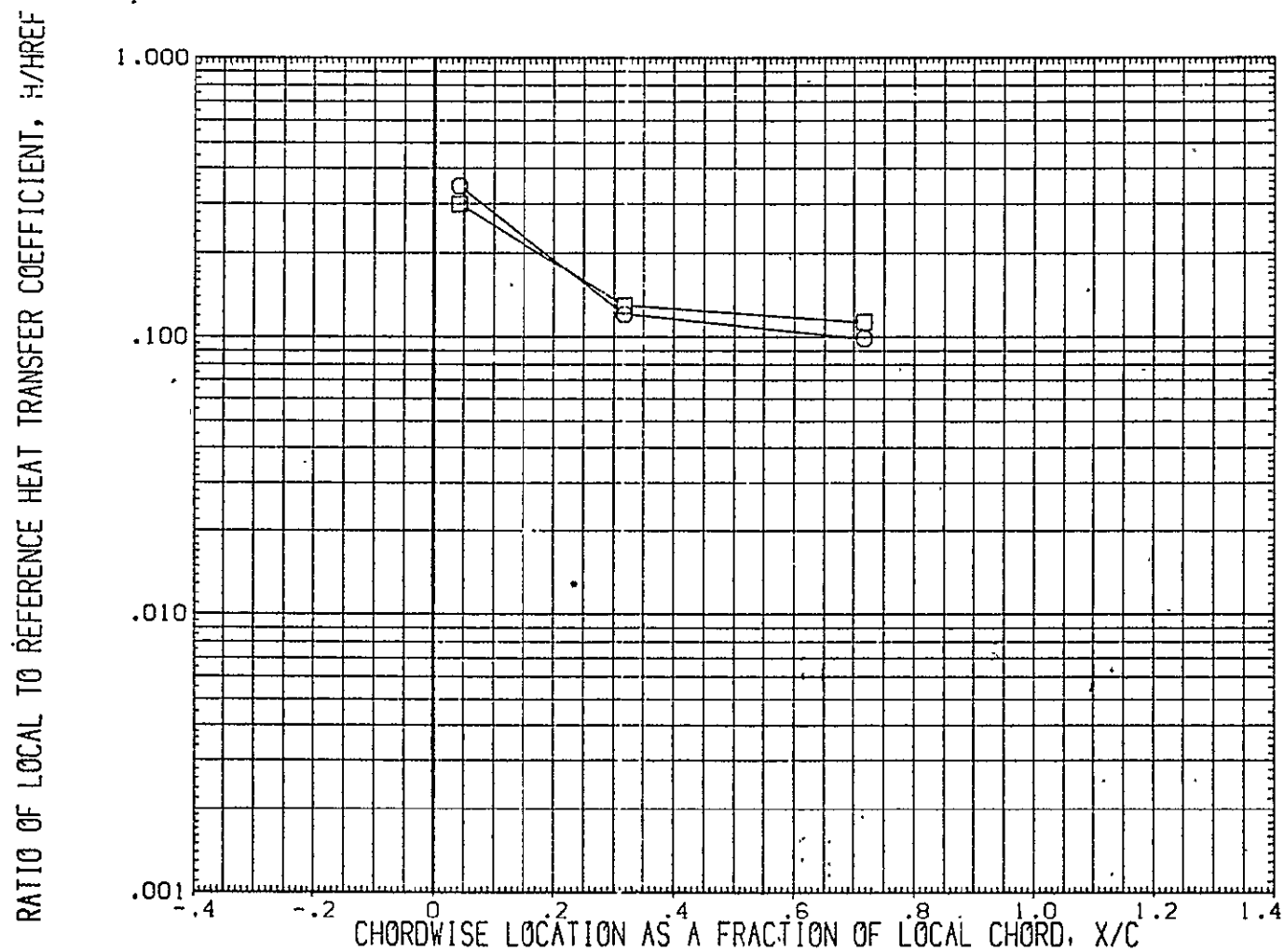


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER $\alpha=30$

MACH = 12.100 HAW/HT= 1.000 $2Y/B = .750$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA	
(EUGW11) 8	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.254	30.000	.000
(JUGW16)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.963	30.000	.000

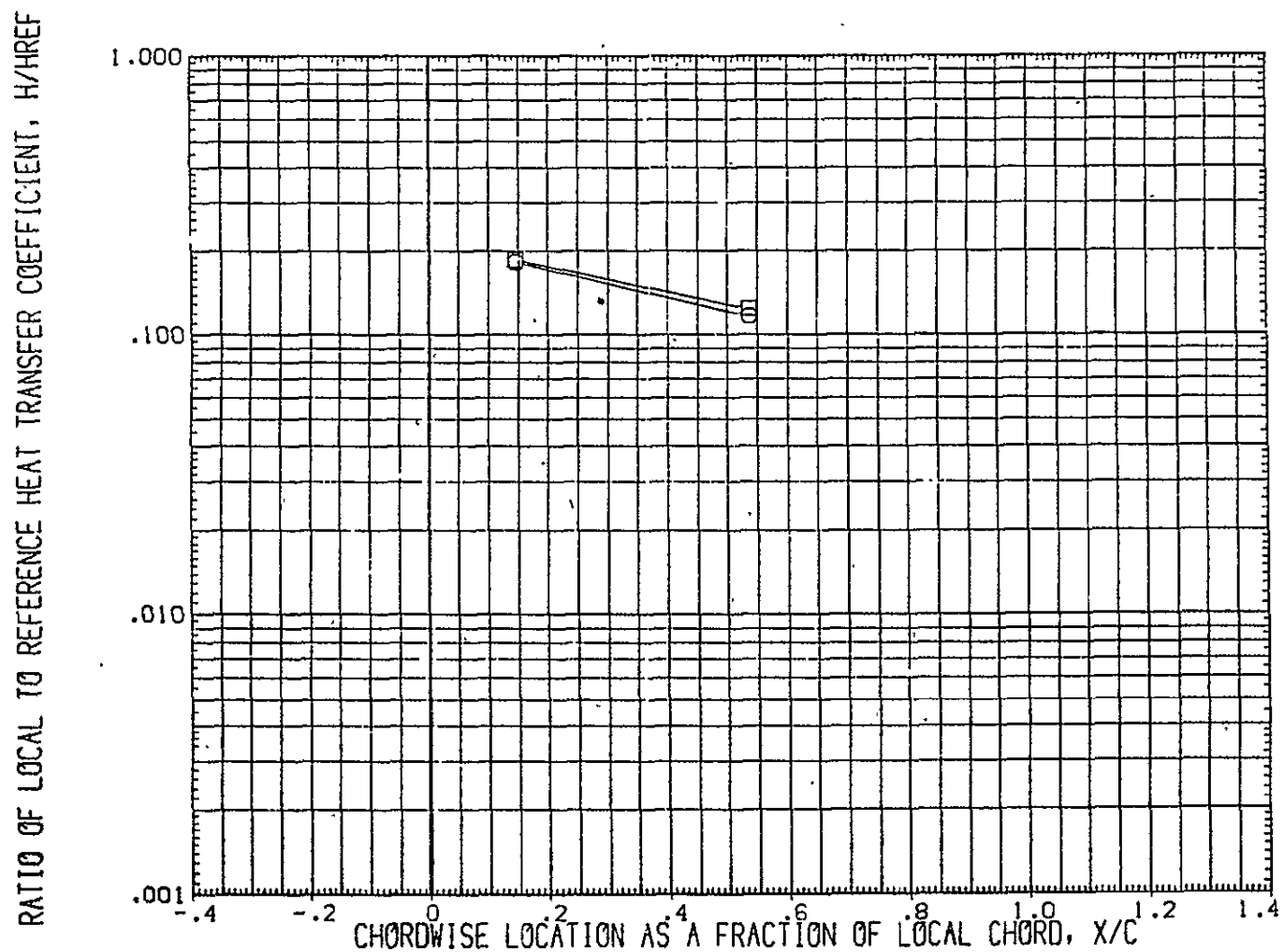


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= 1.000 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION		RN/L	ALPHA	BETA	
(FUGW11)	OM12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.046	30.000	.000
(1UGW16)	OM12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.245	30.000	.000

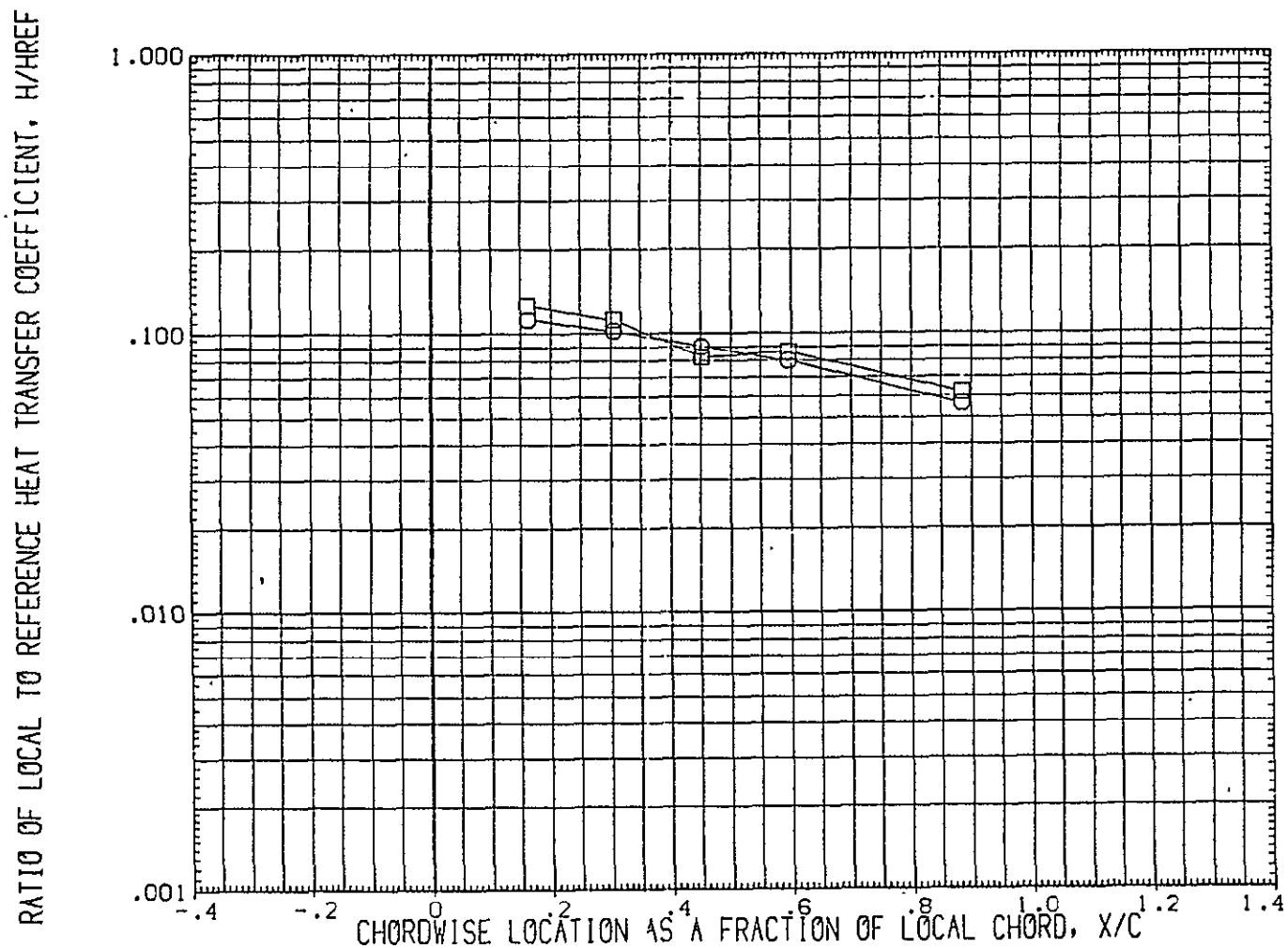


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT = .850 2Y/B = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGW11)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.045	30.000	.000
(FUGW16)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.245	30.000	.000

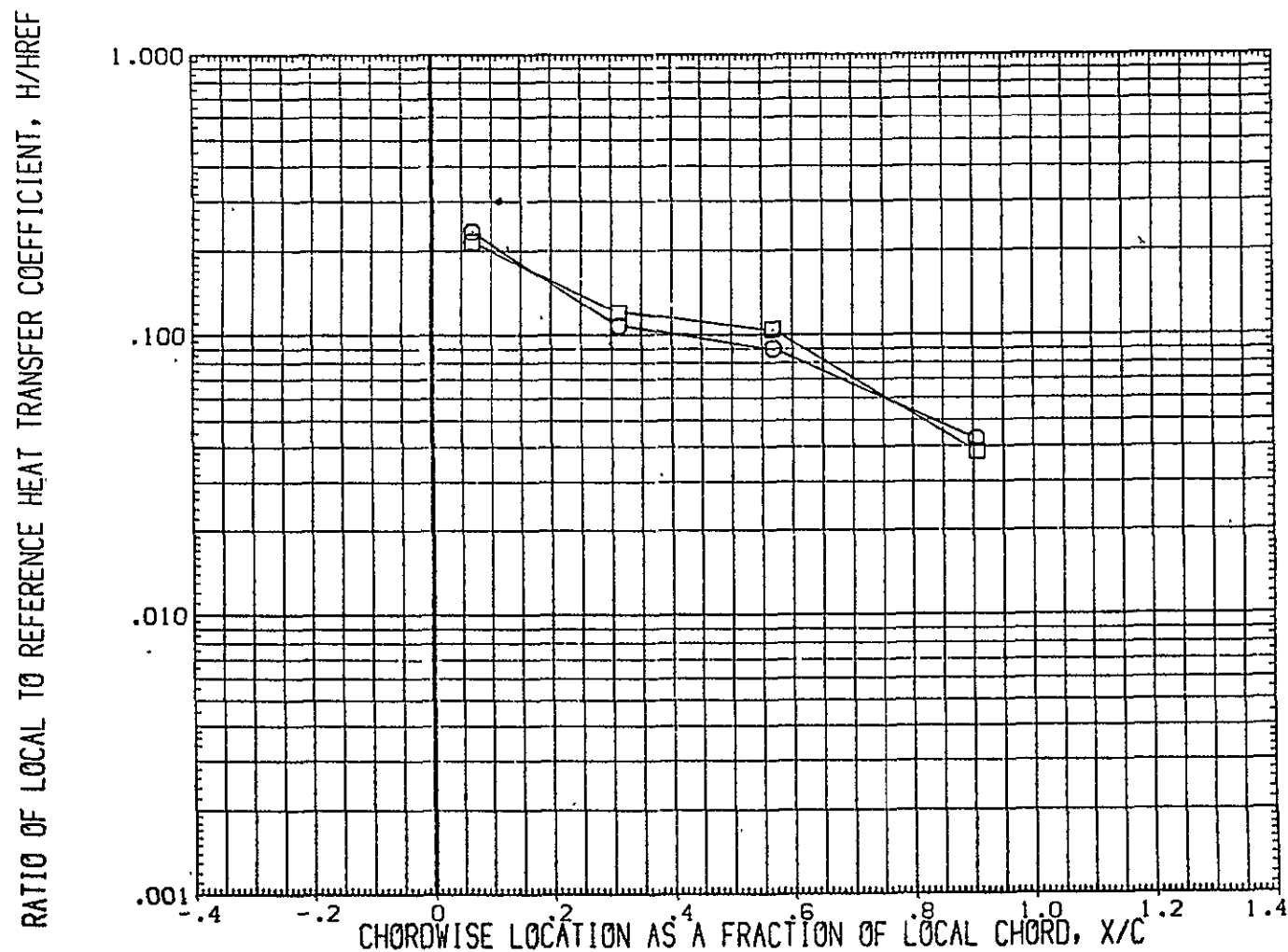


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= .850 2Y/B = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.046	30.000	.000
(1UGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.245	30.000	.000

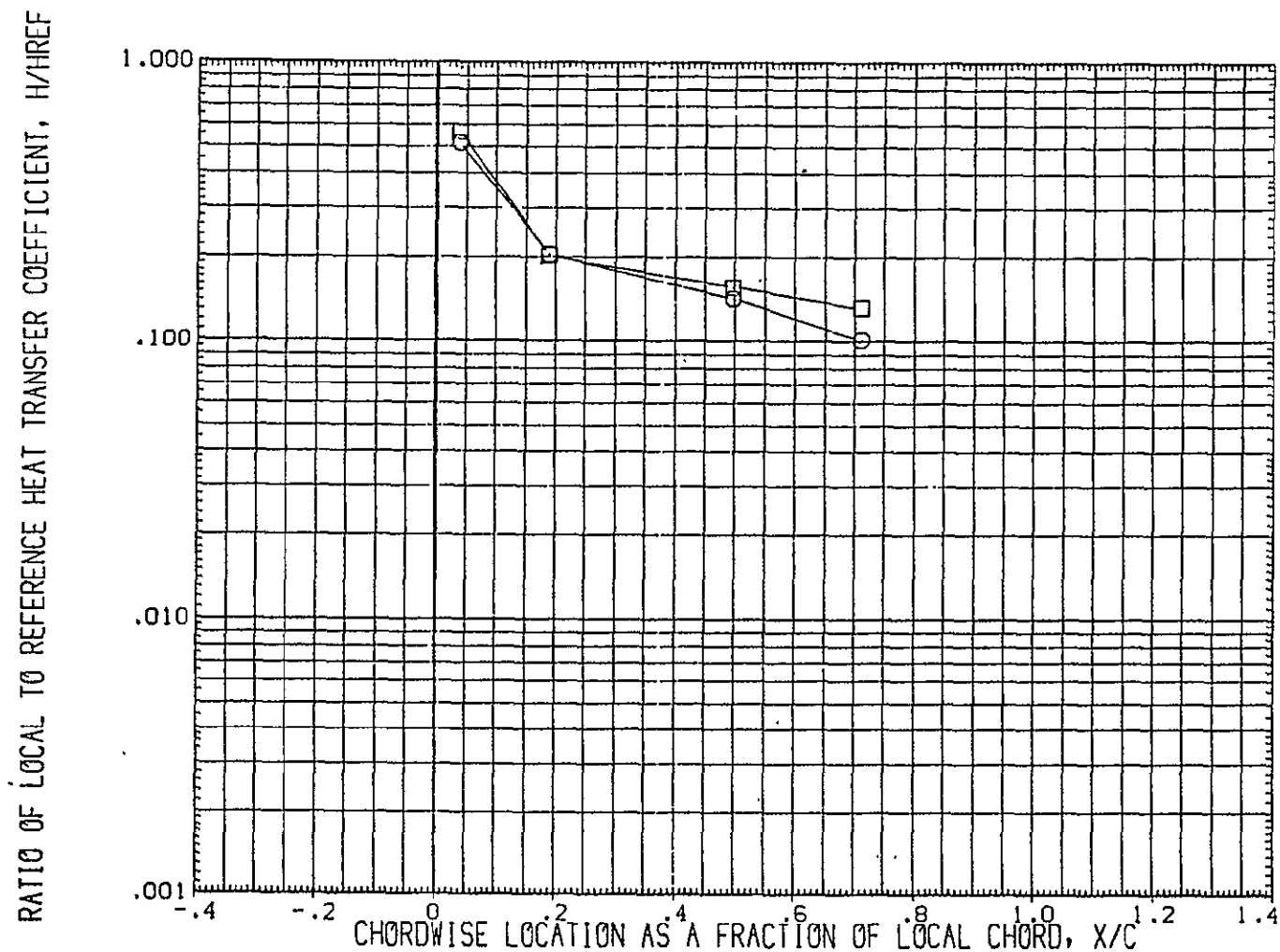


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30
MACH = 15.880 HAW/HT= .850 2Y/B = .500

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGW11)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.046	30.000	.000
(1UGW16)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.245	30.000	.000

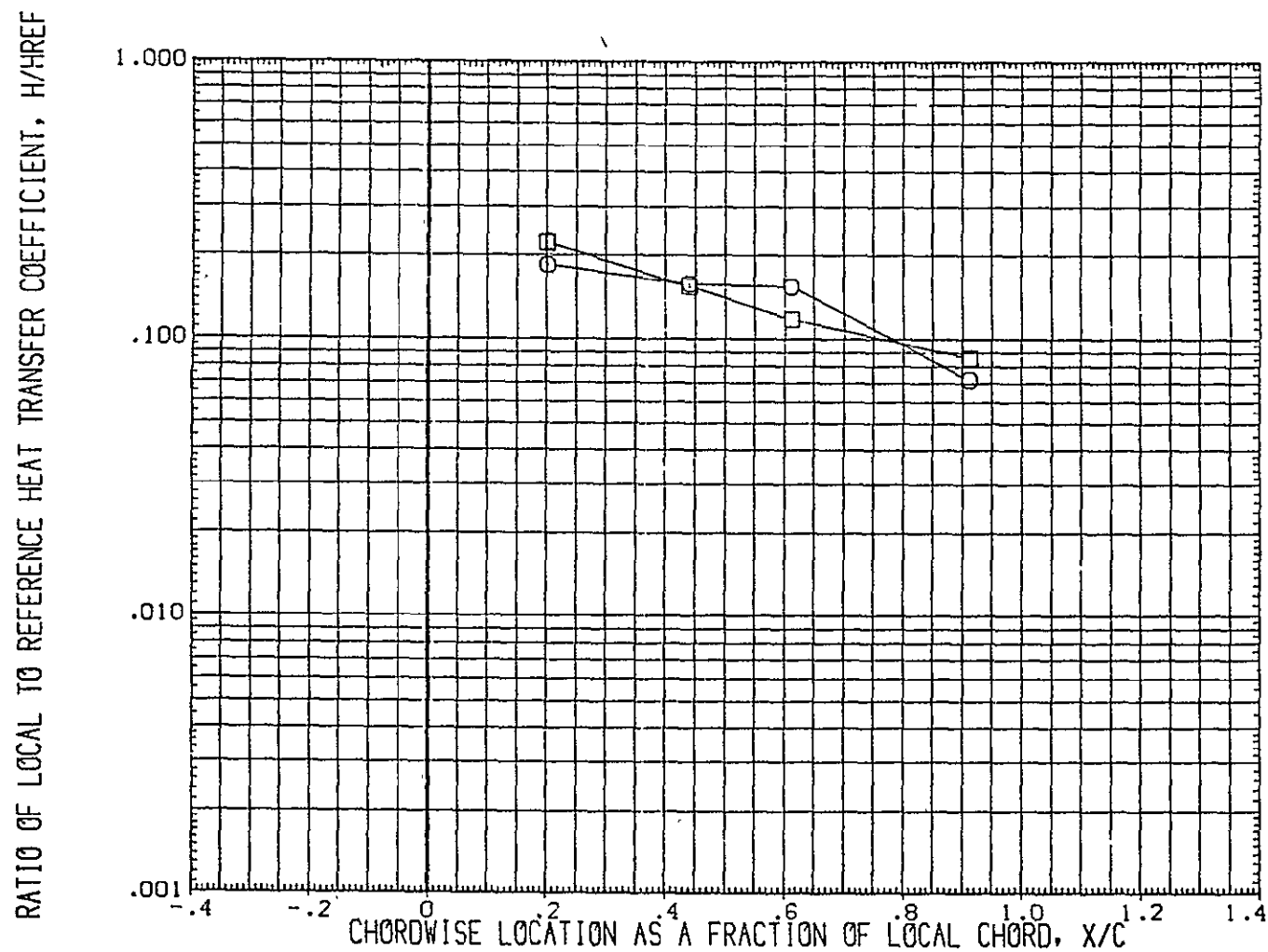


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30
MACH = 15.880 HAW/HT= .850 2Y/B = .600 PAGE .928

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGW11)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.046	30.000	.000
(TUGW16)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.245	30.000	.000

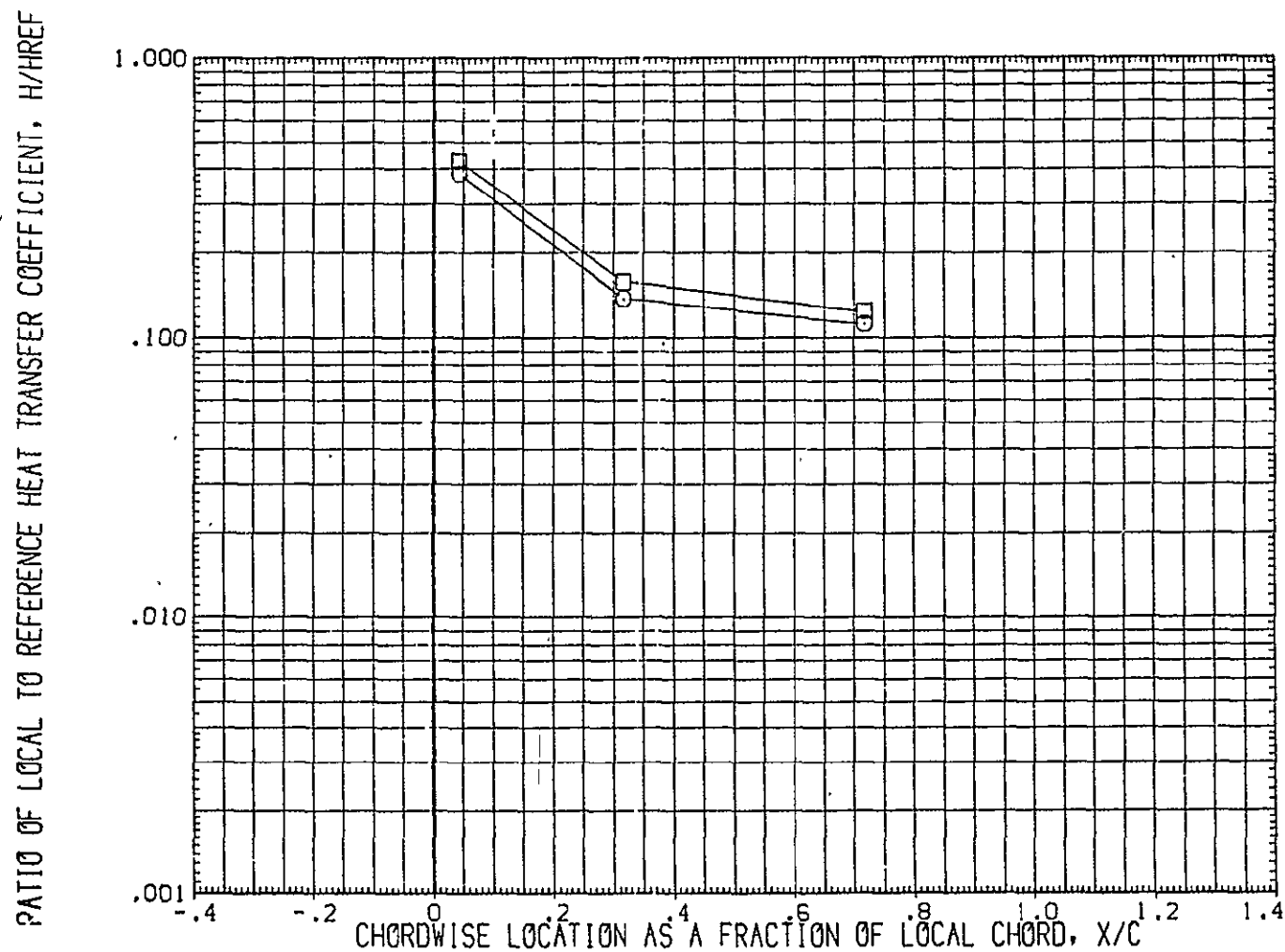


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= .850 2Y/B = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGW11)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.3.	.046	30.000	.000
(IUGW16)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.5.	.245	30.000	.000

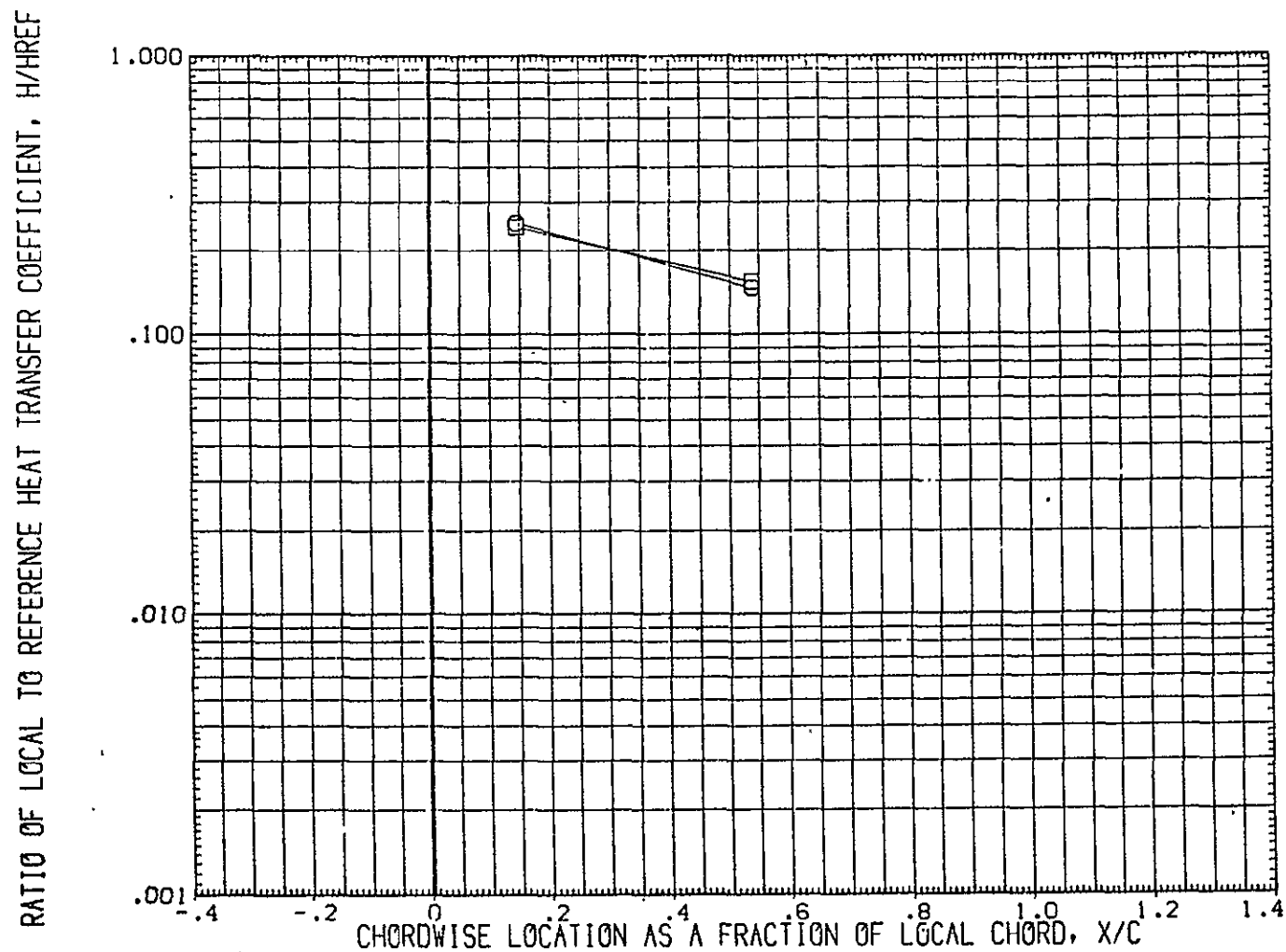


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= .850 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGW11)	OH12/1H21 (CAL HST 173-100) 37 C	WING L.S. .046	30.000	.000
(1UGW16)	OH12/1H21 (CAL HST 173-100) 37 O	WING L.S. .245	30.000	.000

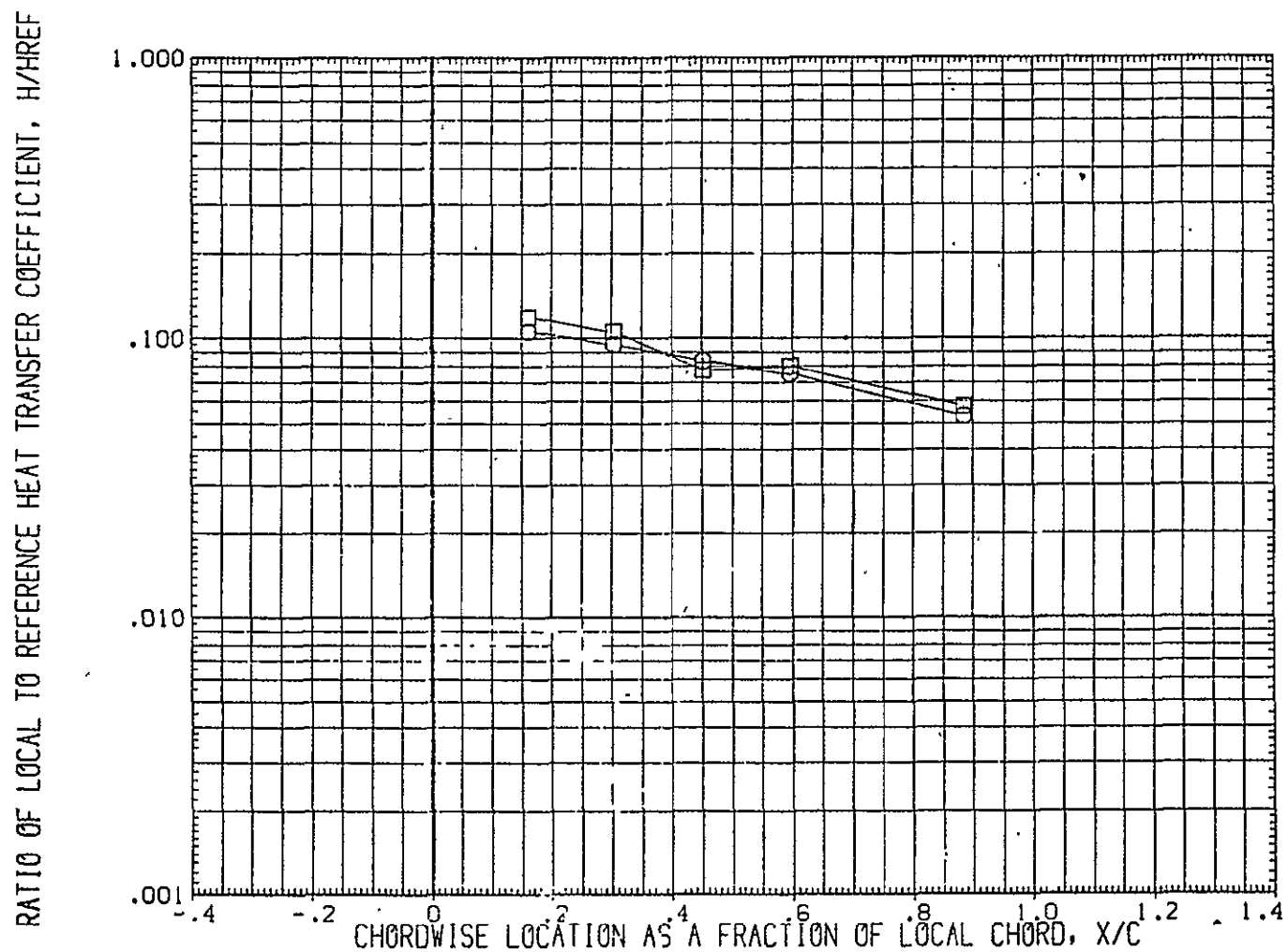


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30
MACH = 15.880 HAW/HT= .900 2Y/B = .250 PAGE 931

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGW11)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.045	30.000	.000
(TUGW16)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.245	30.000	.000

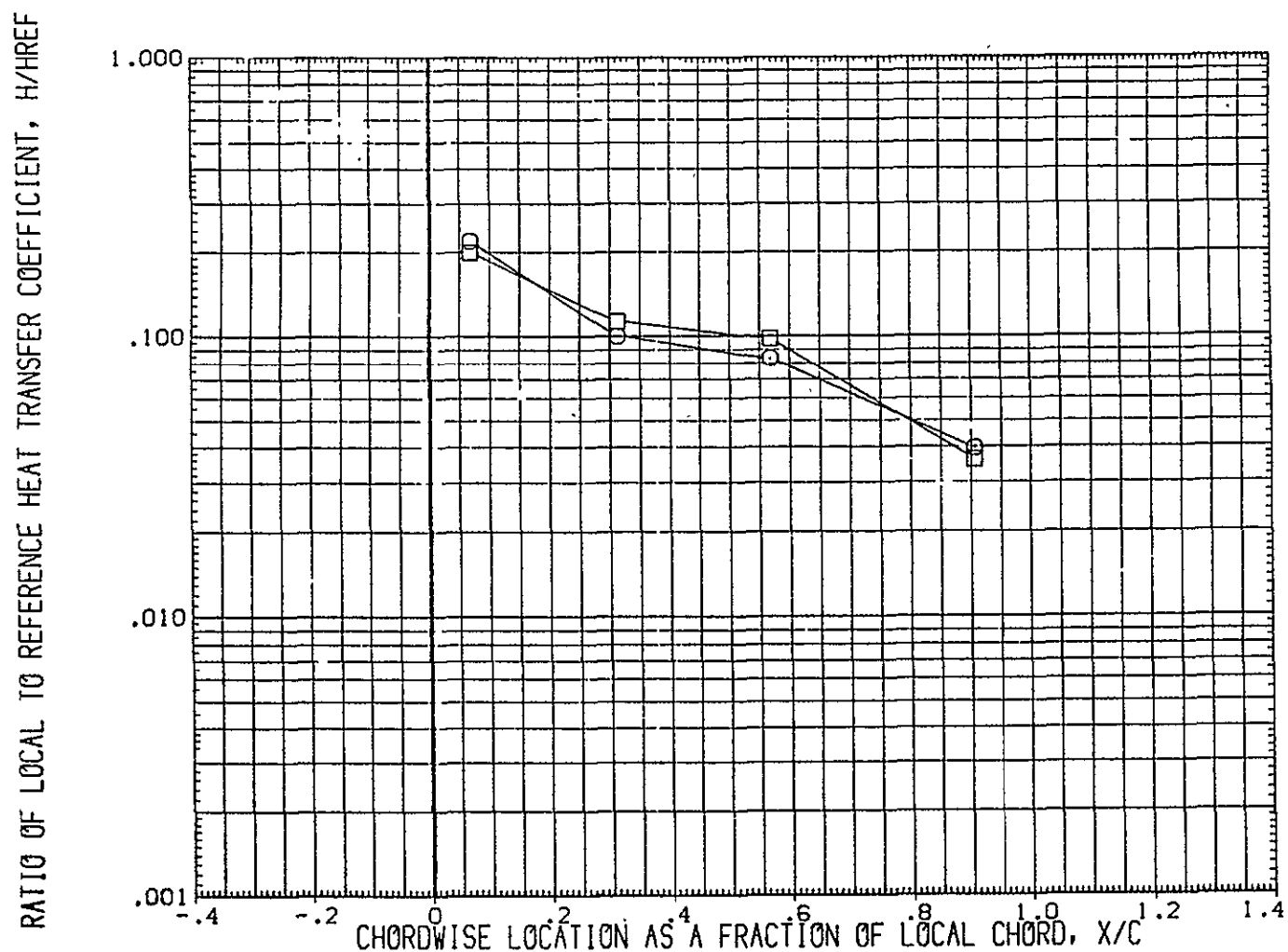


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= .900 2Y/B = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA
(FUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.046	30.000	.000
(1UGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.245	30.000	.000

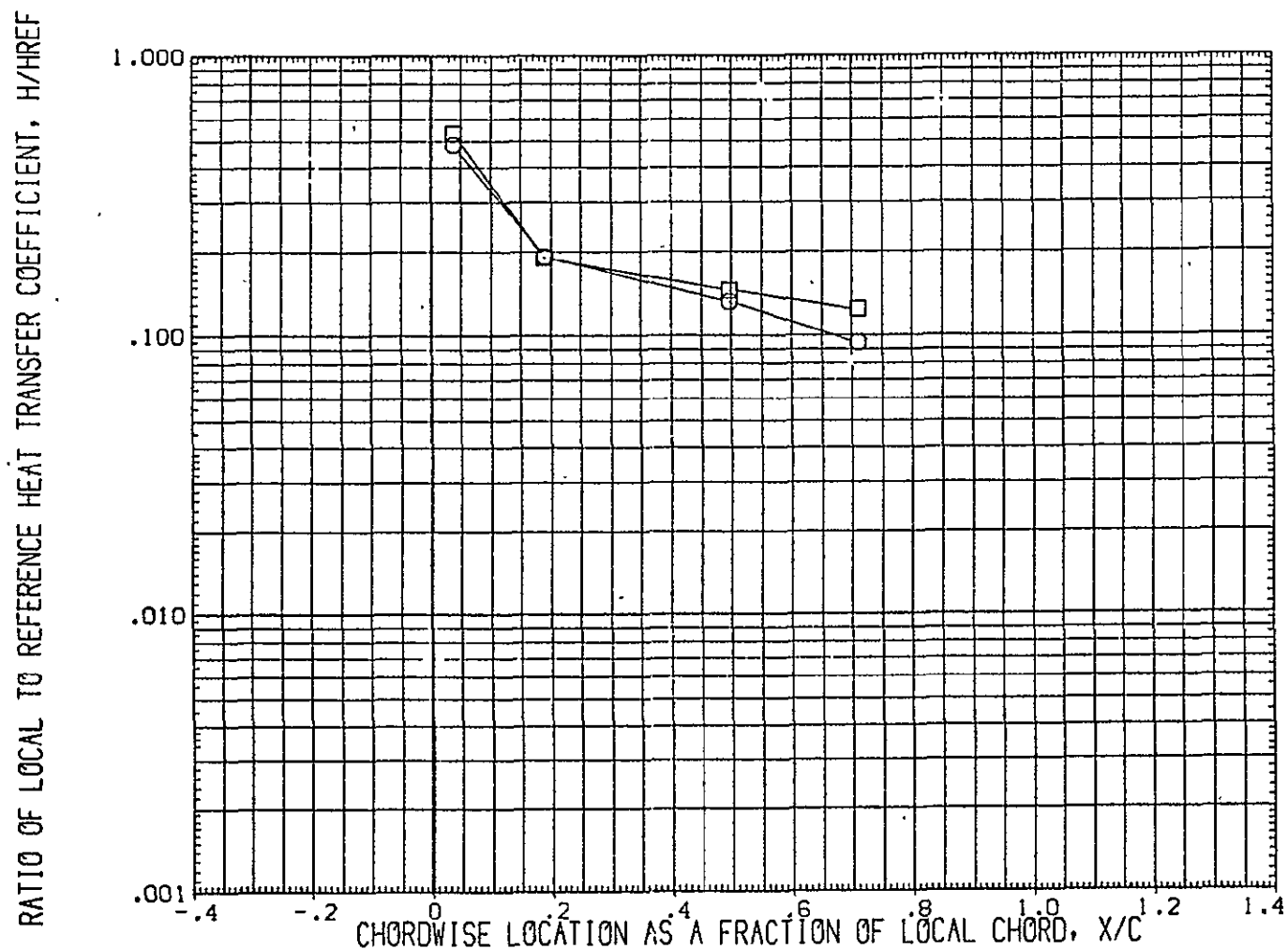


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30
MACH = 15.880 HAW/HT= .900 2Y/B = .500 PAGE 933

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGW11)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.045	30.000	.000
(FUGW16)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.245	30.000	.000

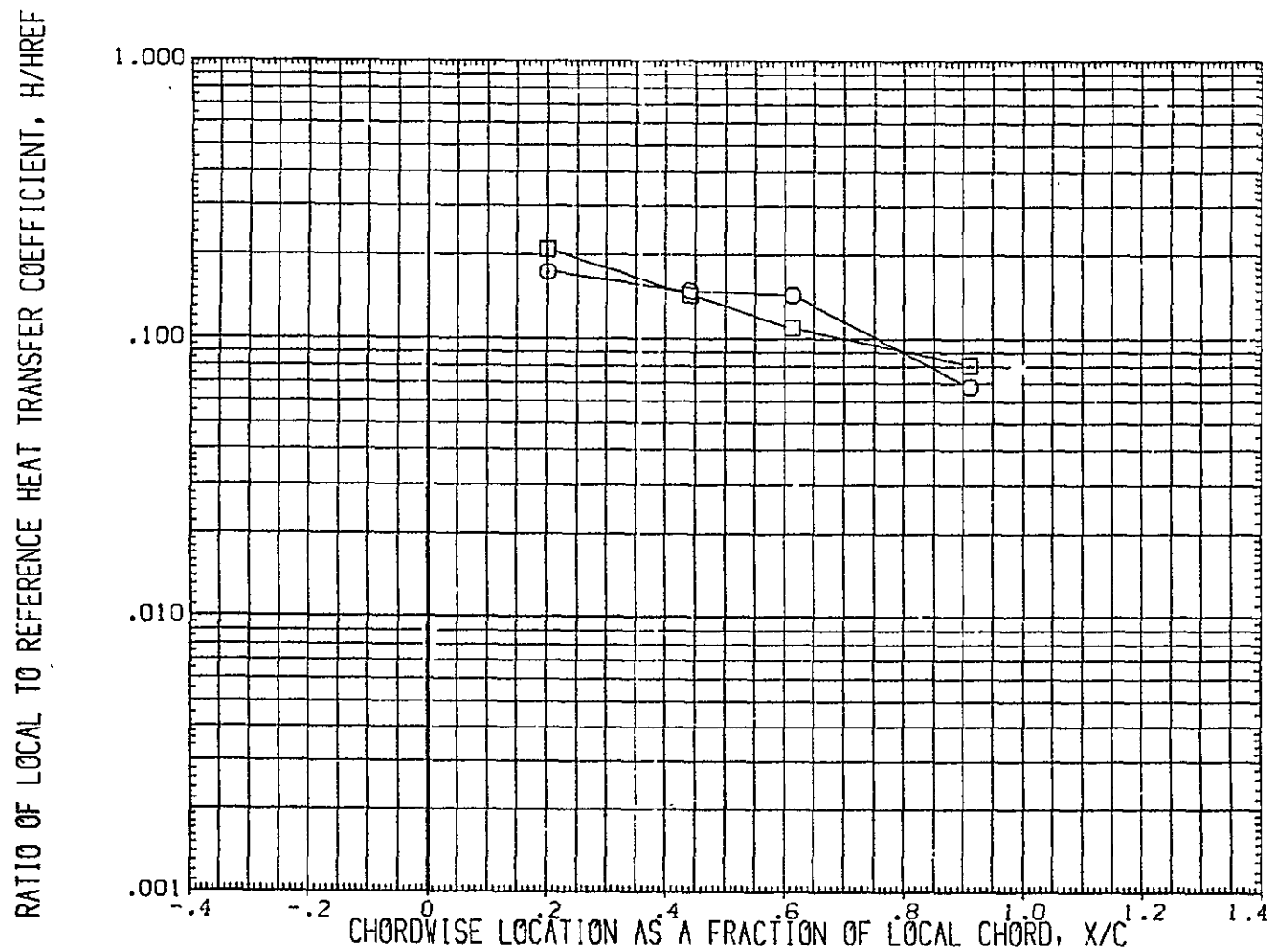


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30
MACH = 15.880 HAW/HT= .900 2Y/B = .600 PAGE 934

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGW11)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	.046	30.000	.000
(TUGW16)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	.245	30.000	.000

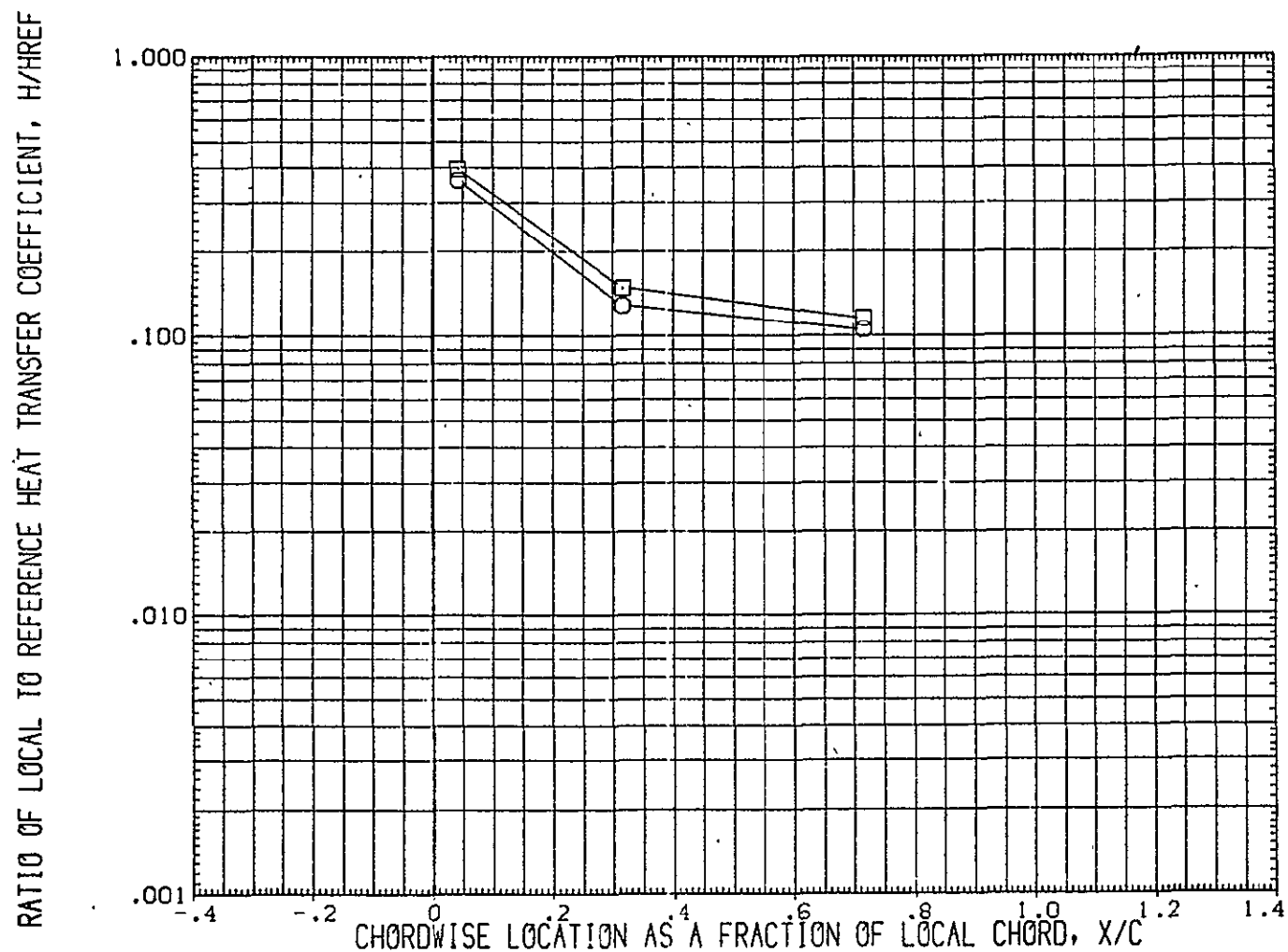


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30
MACH = 15.880 HAW/HT= .900 2Y/B = .750 PAGE 935

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	RM/L	ALPHA	BETA
(FUGW11)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.046	30.000	.000
(1UGW16)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.245	30.000	.000

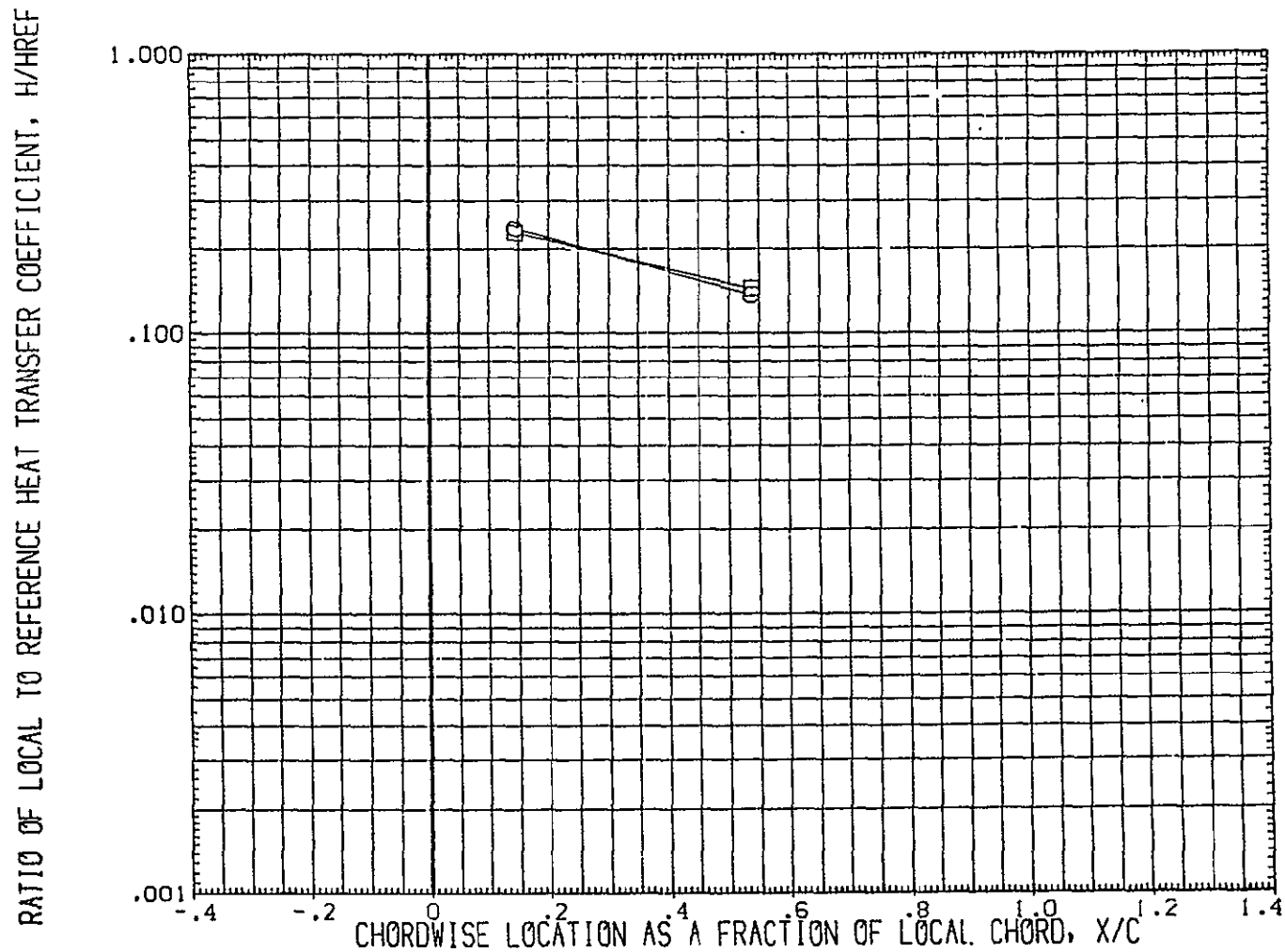


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= .900 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGW11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.046	30.000	.000
(1UGW16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.245	30.000	.000

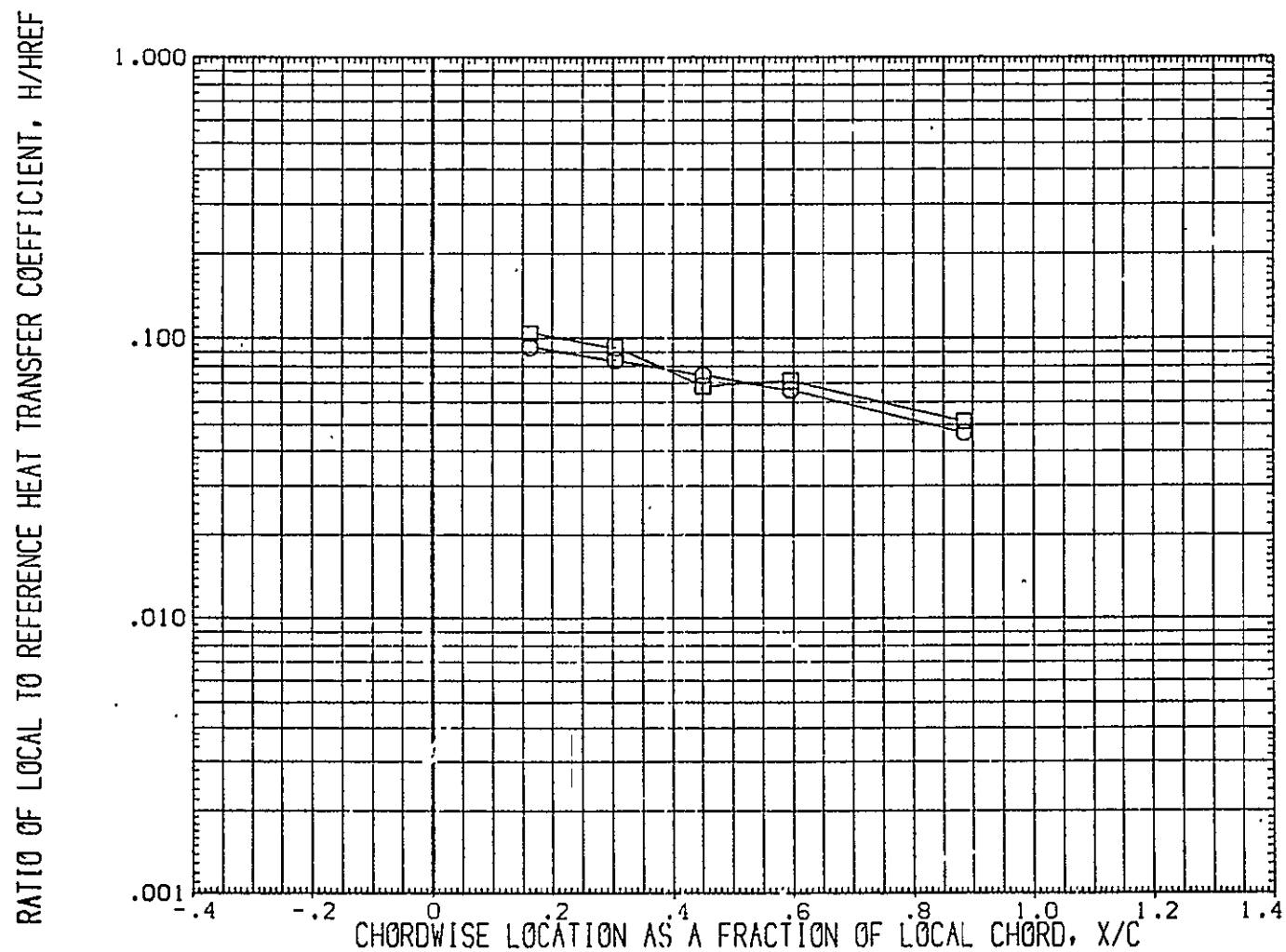


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30
MACH = 15.880 HAW/HT= 1.000 2Y/B = .250 PAGE 937

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA
(FUG#11)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.046	30.030	.000
(1UG#16)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.245	30.030	.000

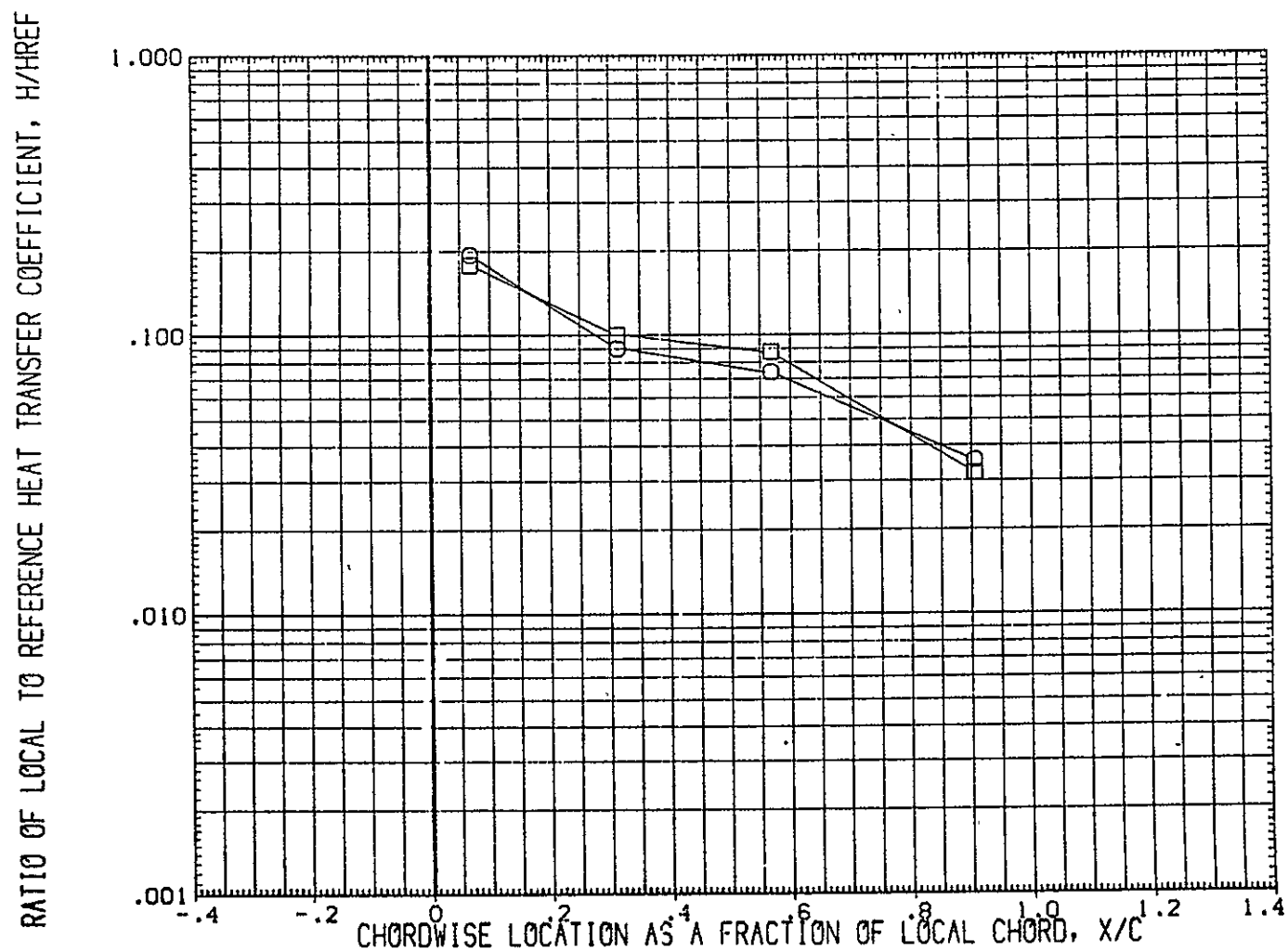


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= 1.000 2Y/B = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION		RN/L	ALPHA	BETA	
(FUGW11)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.046	30.000	.000
(FUGW16)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.245	30.000	.000

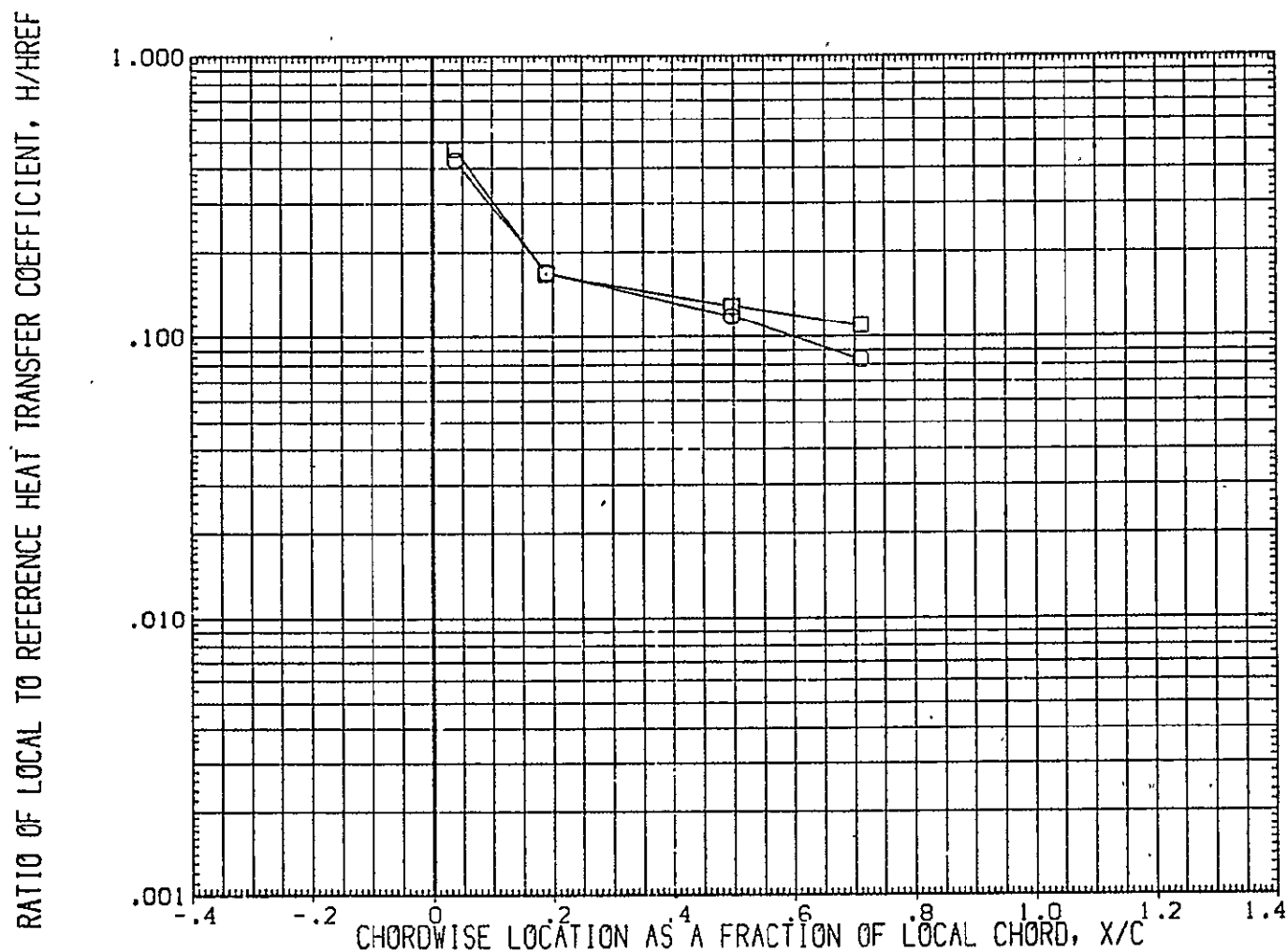


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30
MACH = 15.880 HAW/HT= 1.000 2Y/B = .500

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGV11)	0412/1H21 (CAL HST 173-100) 37 0 WING L.E.	.046	30.000	.000
(TUGV16)	0412/1H21 (CAL HST 173-100) 37 0 WING L.E.	.245	30.000	.000

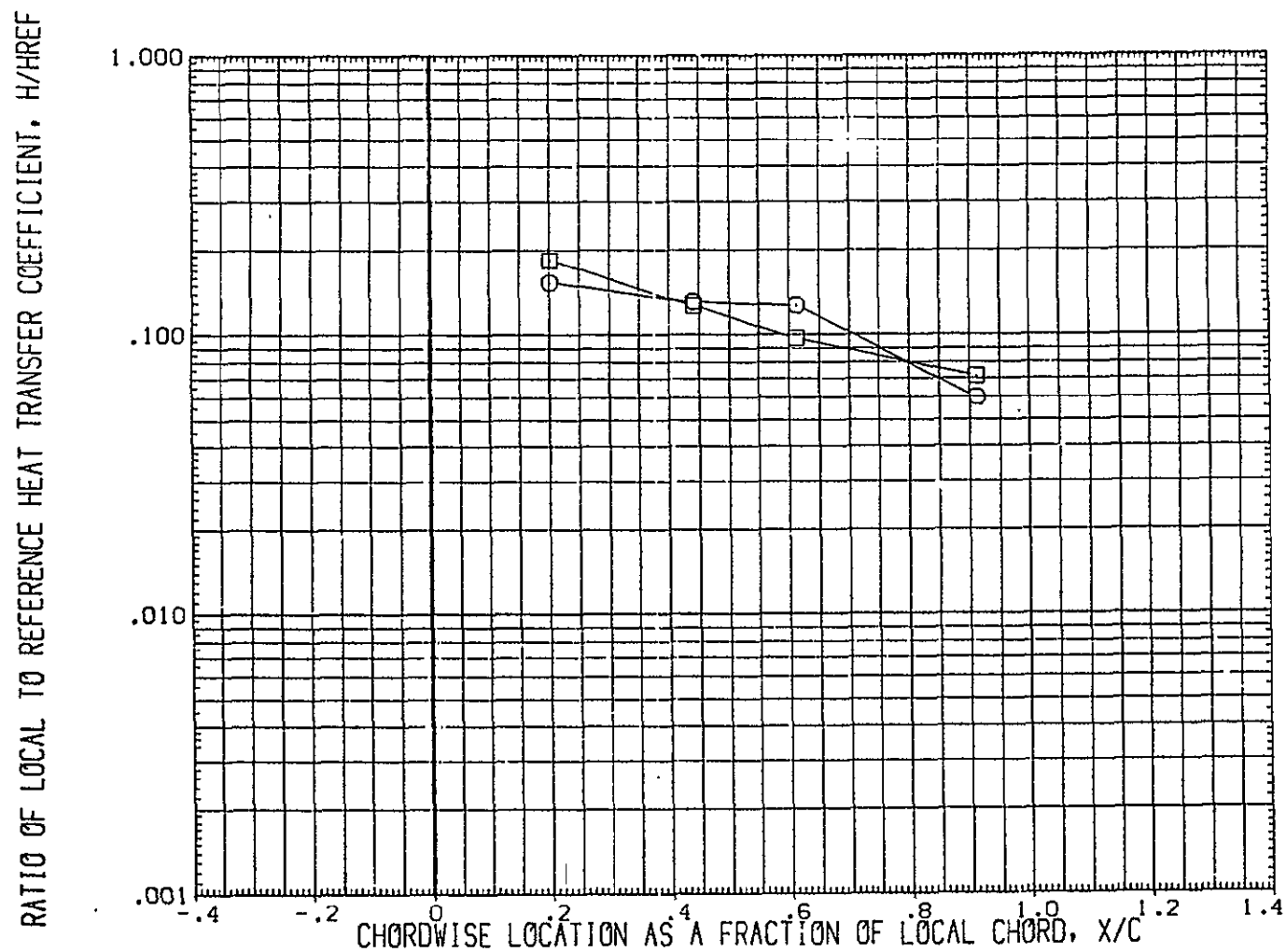


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= 1.000 2Y/B = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGW11)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	.046	30.000	.000
(1UGW16)	OH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	.245	30.000	.000

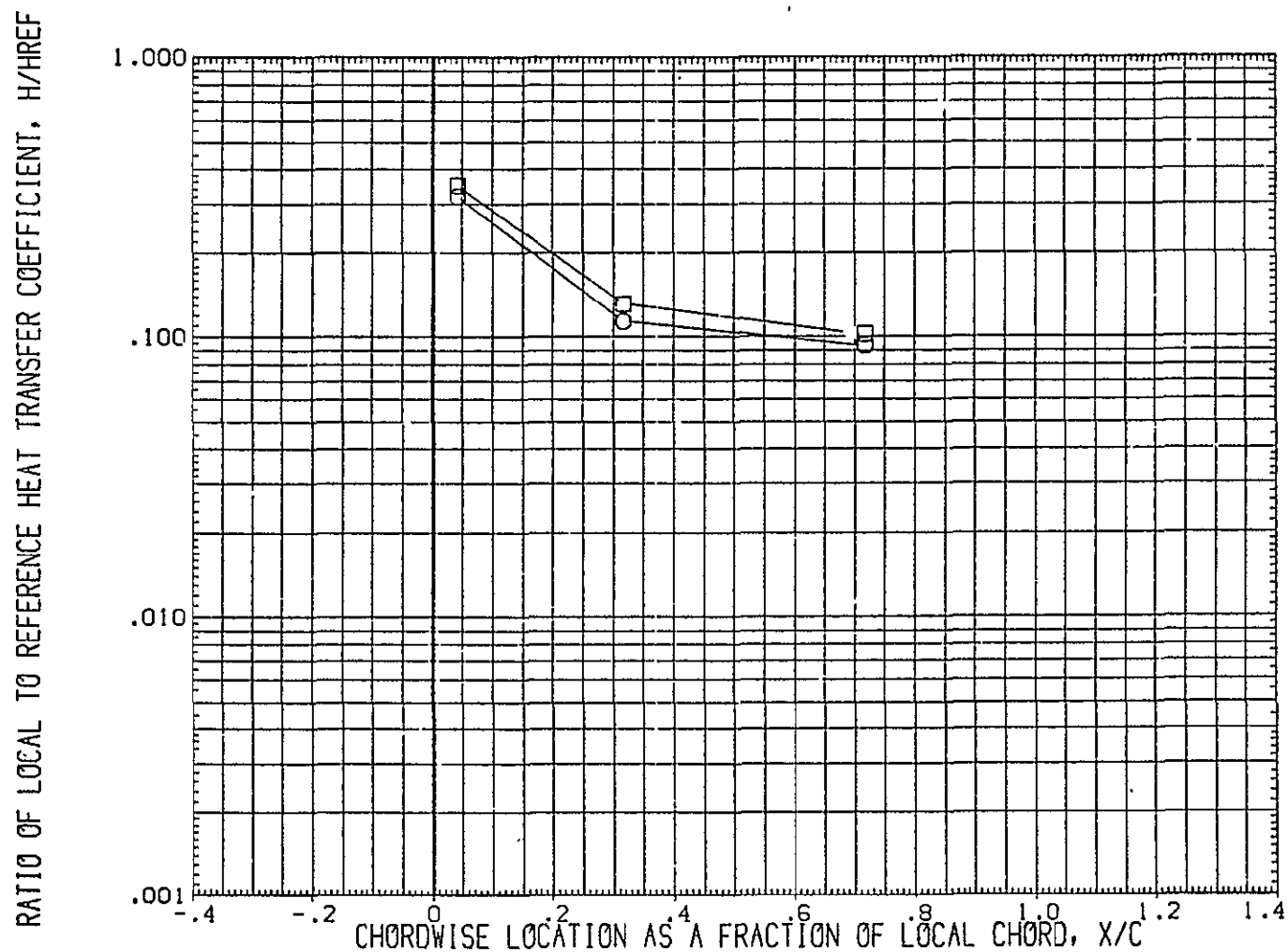


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= 1.000 2Y/B = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUSW11)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.046	33.000	.000
(TUGW16)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.245	33.000	.000

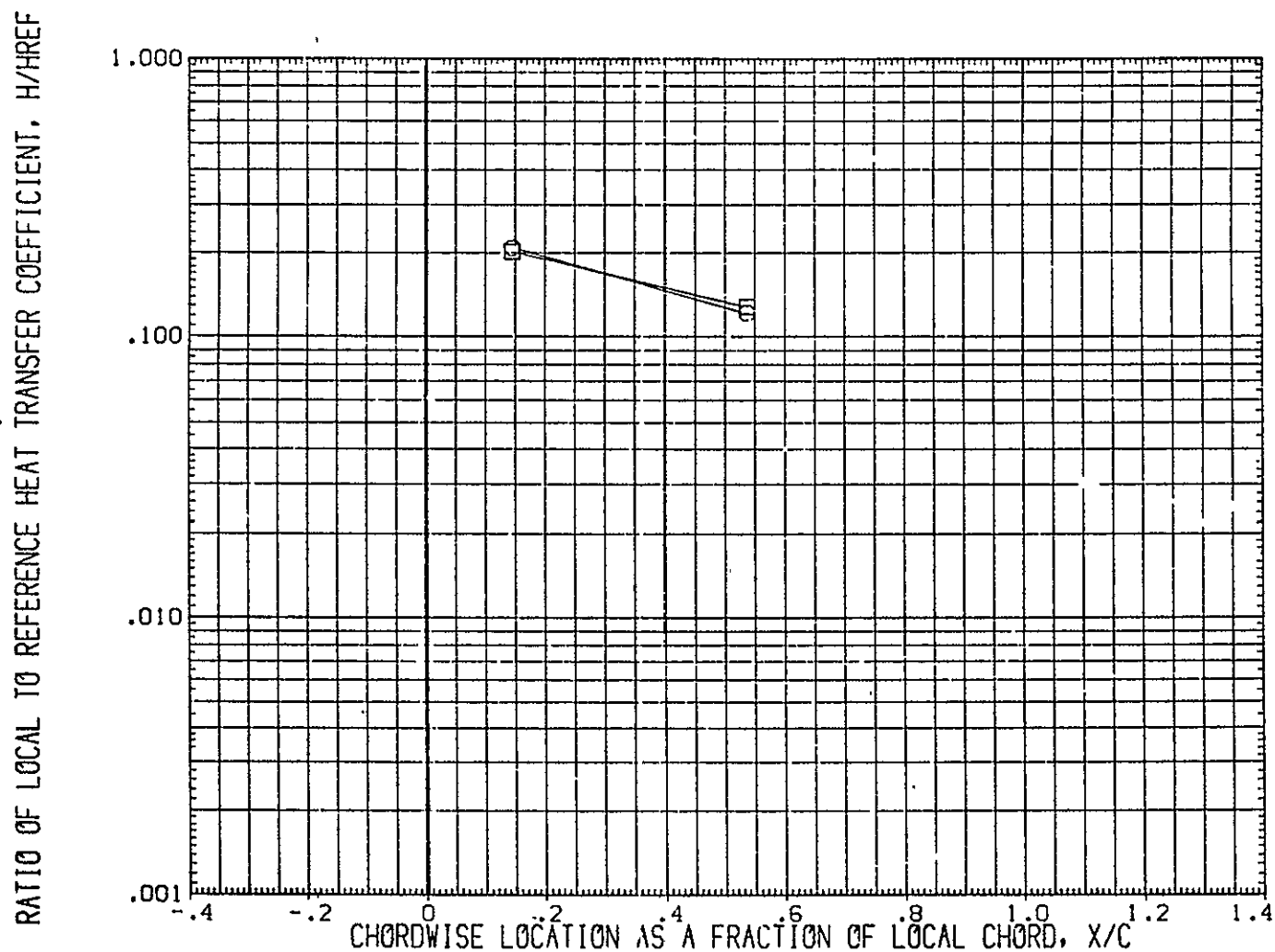


FIG.31 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= 1.000 2Y/3 = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(EUGV11)	OH12/1H21 (CAL HST 173-100) 37 0	VERTICAL	.254	30.000	.000
(JUGV16)	OH12/1H21 (CAL HST 173-100) 37 0	VERTICAL	.963	30.000	.000

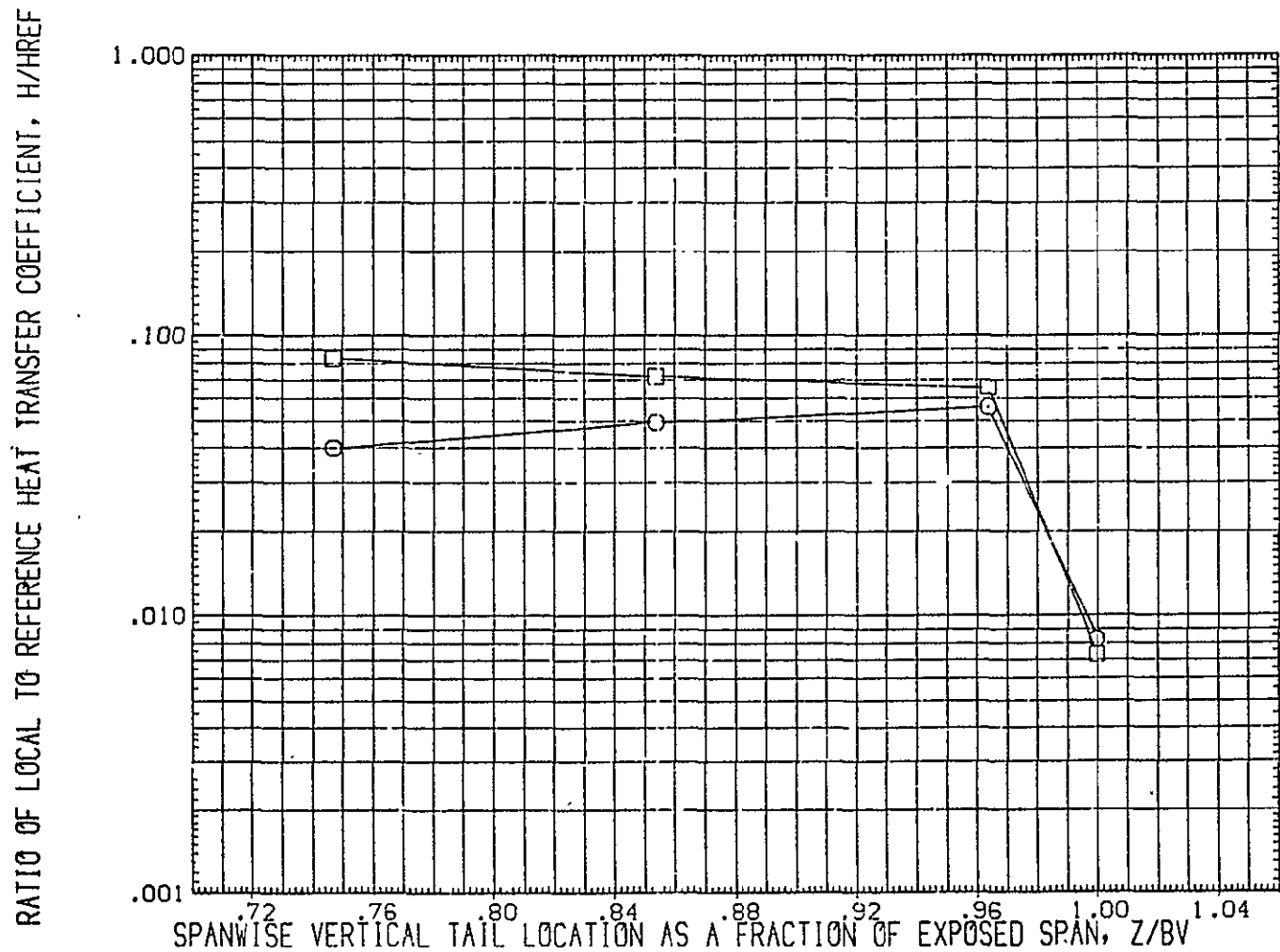


FIG.32 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= .850 GAGENO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(EUGV11)	OH12/1H21 (CAL HST 173-100) 37 0	VERTICAL	.254	30.000	.000
(JUGV16)	OH12/1H21 (CAL HST 173-100) 37 0	VERTICAL	.963	30.000	.000

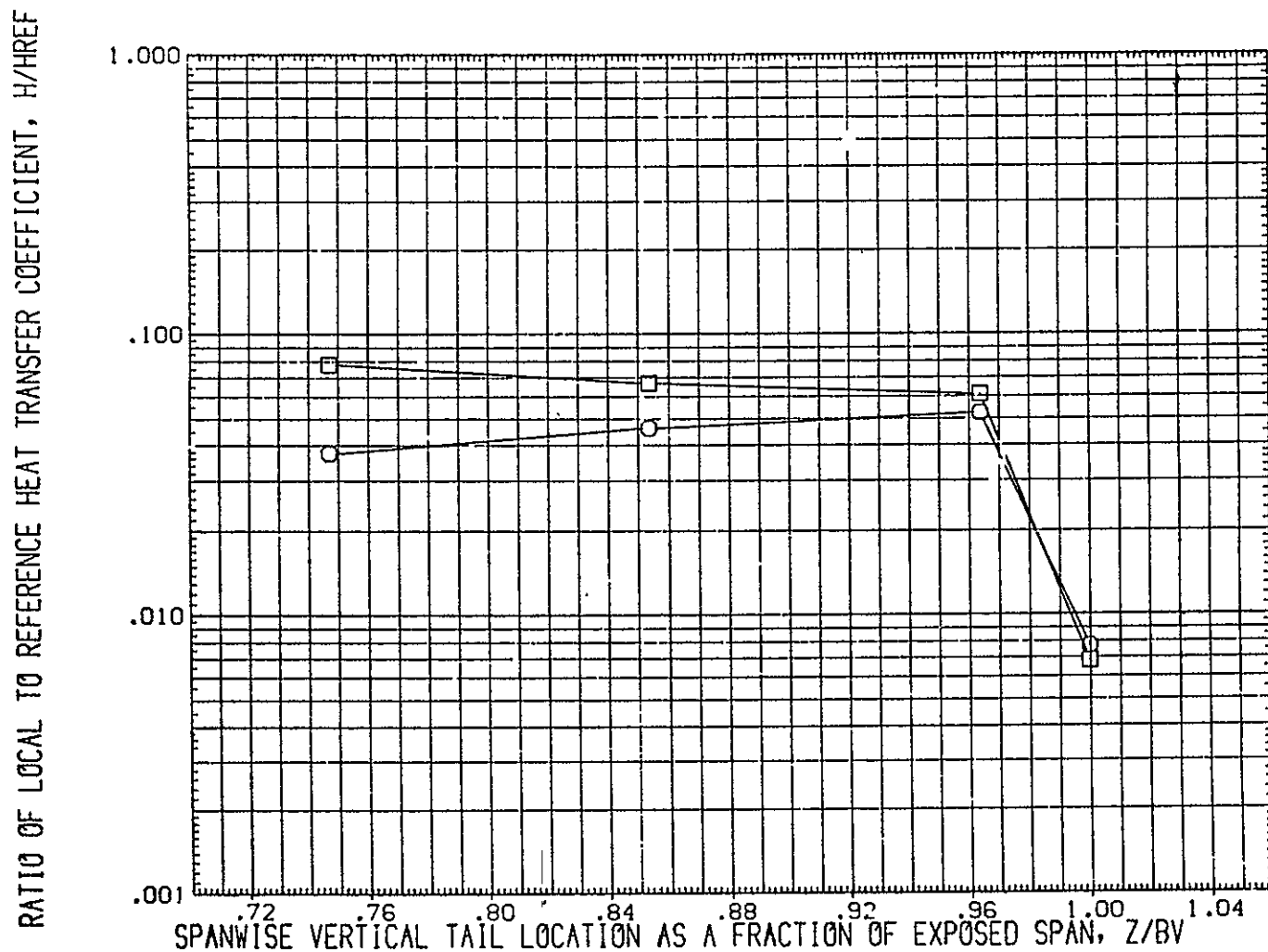


FIG.32 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= .900 GAGENO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	VERTICAL	RN/L	ALPHA	BETA
(EUGV11)	CH12/1H21 (CAL PST 173-100)	37 0	VERTICAL	.254	30.000	.000
(JUGV16)	CH12/1H21 (CAL PST 173-100)	37 0	VERTICAL	.963	30.000	.000

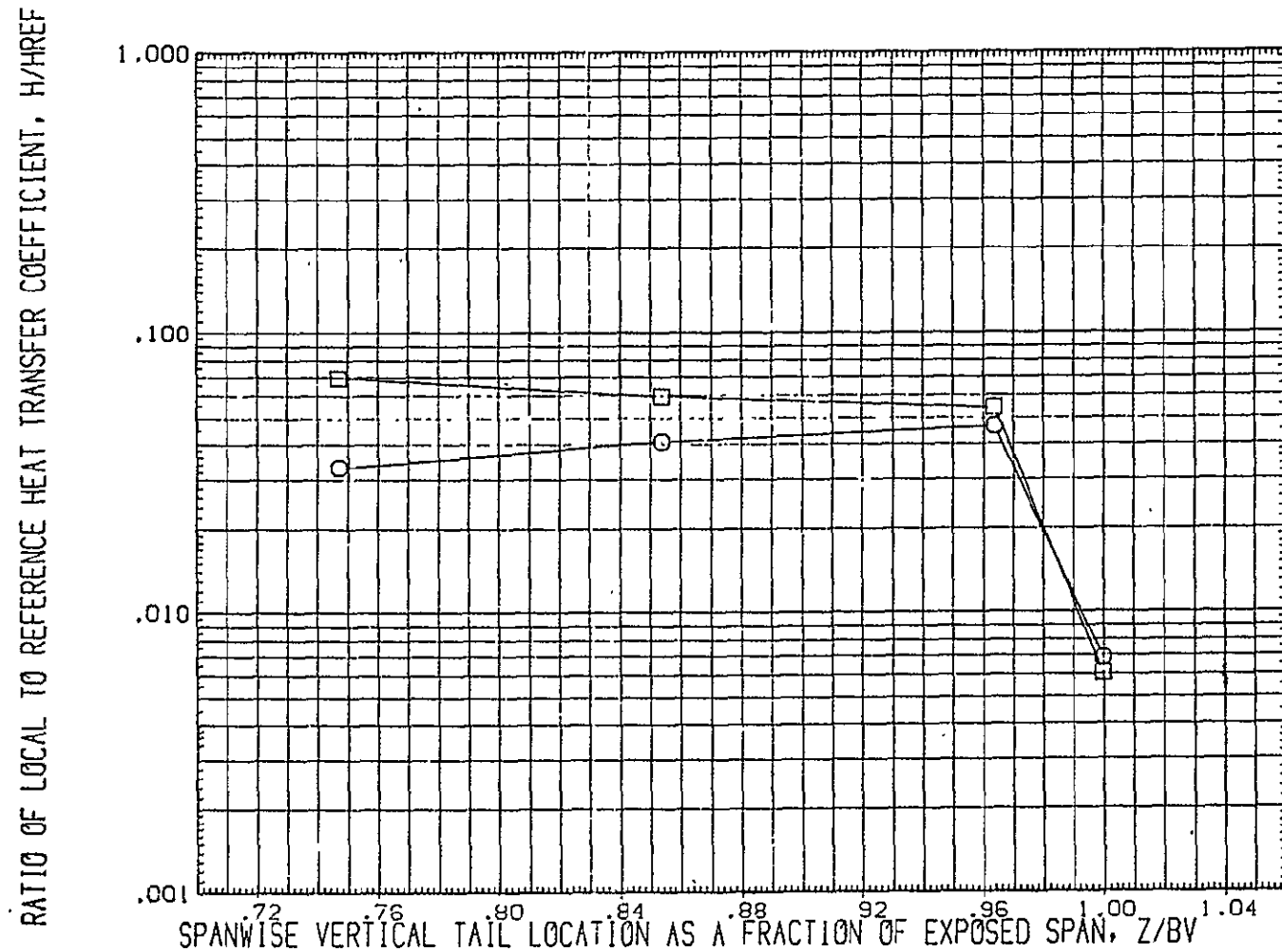


FIG.32 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=30

MACH = 12.100 HAW/HT= 1.000 GAGENO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RV/L	ALPHA	BETA
(FUGV11)	GM12/142. (CAL HST 173-100) 37 0	VERTICAL	.045	30.000
(FUGV16)	GM12/142. (CAL HST 173-100) 37 0	VERTICAL	.245	30.000

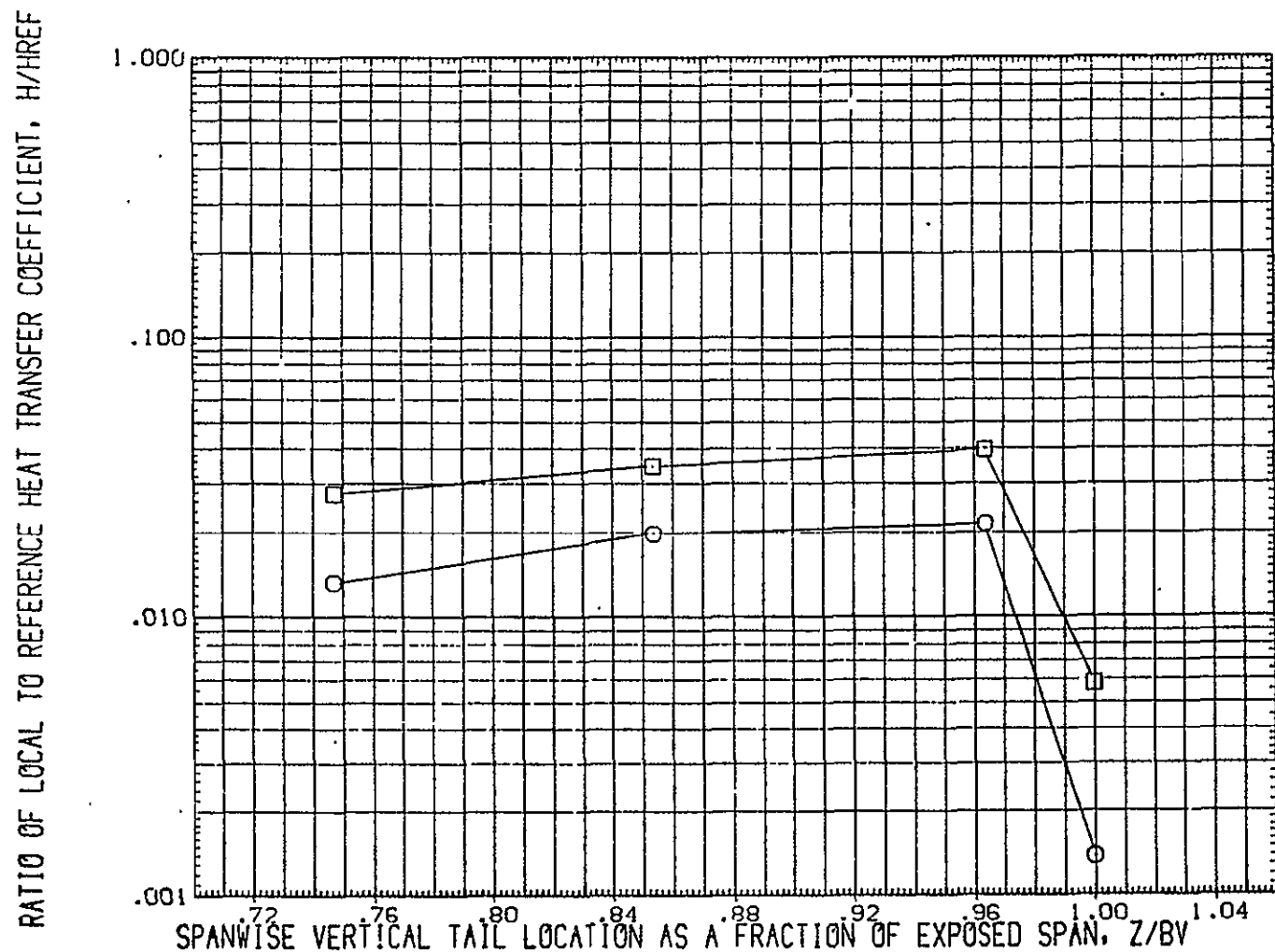


FIG.32 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= .850 GAGENO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PH/L	ALPHA	BETA	
(FUGV11)	OP12/1H21 (CAL HST 173-100) 37 0	VERTICAL	.046	30.000	.000
(1UGV16)	OP12/1H21 (CAL HST 173-100) 37 0	VERTICAL	.245	30.000	.000

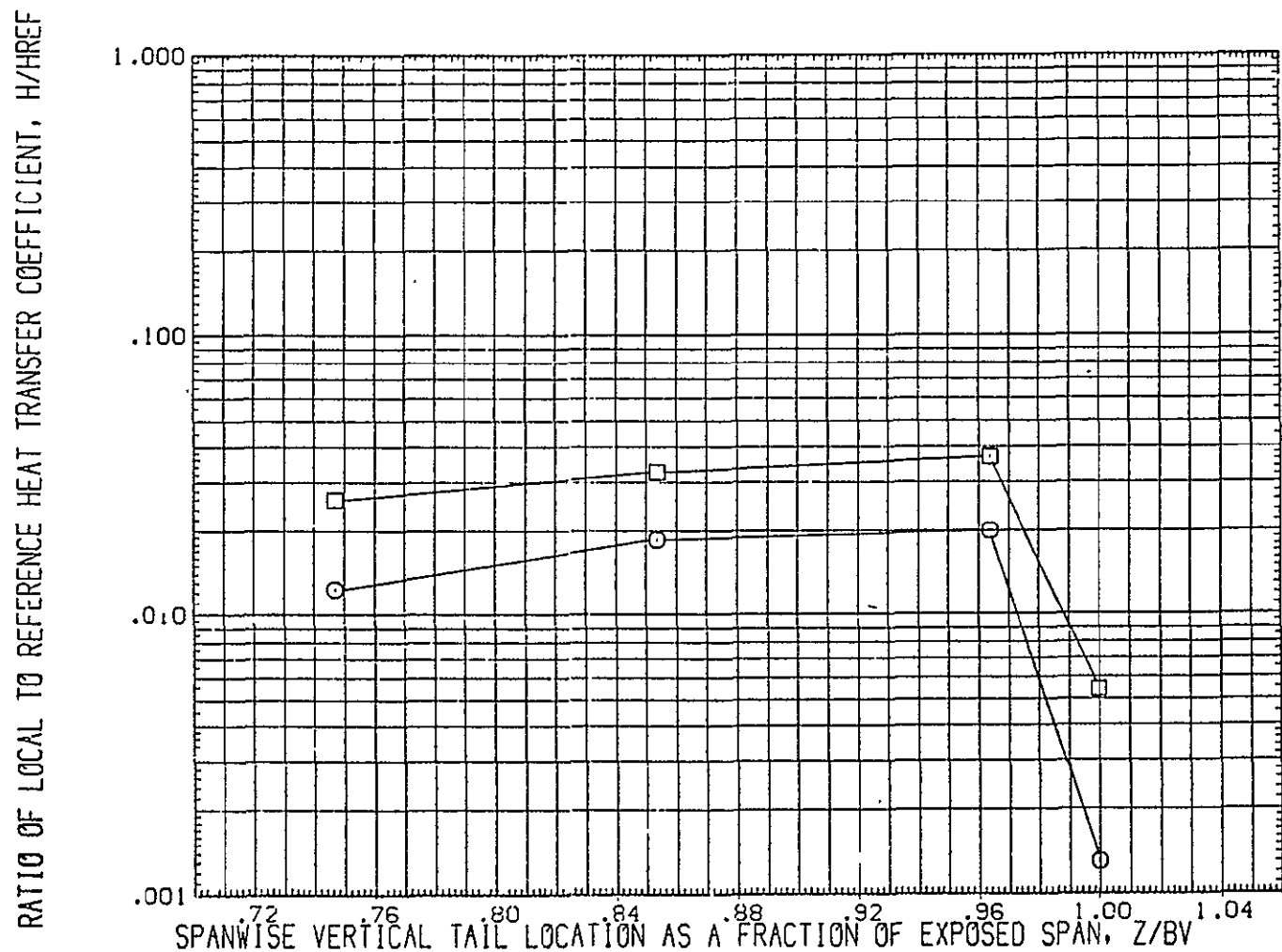


FIG.32 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= .900 GAGE NO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGV11)	CH12/1H21 (CAL HST 173-100) 37 0° VERTICAL	.046	30.000	.000
(1UGV16)	CH12/1H21 (CAL HST 173-100) 37 0° VERTICAL	.245	30.000	.000

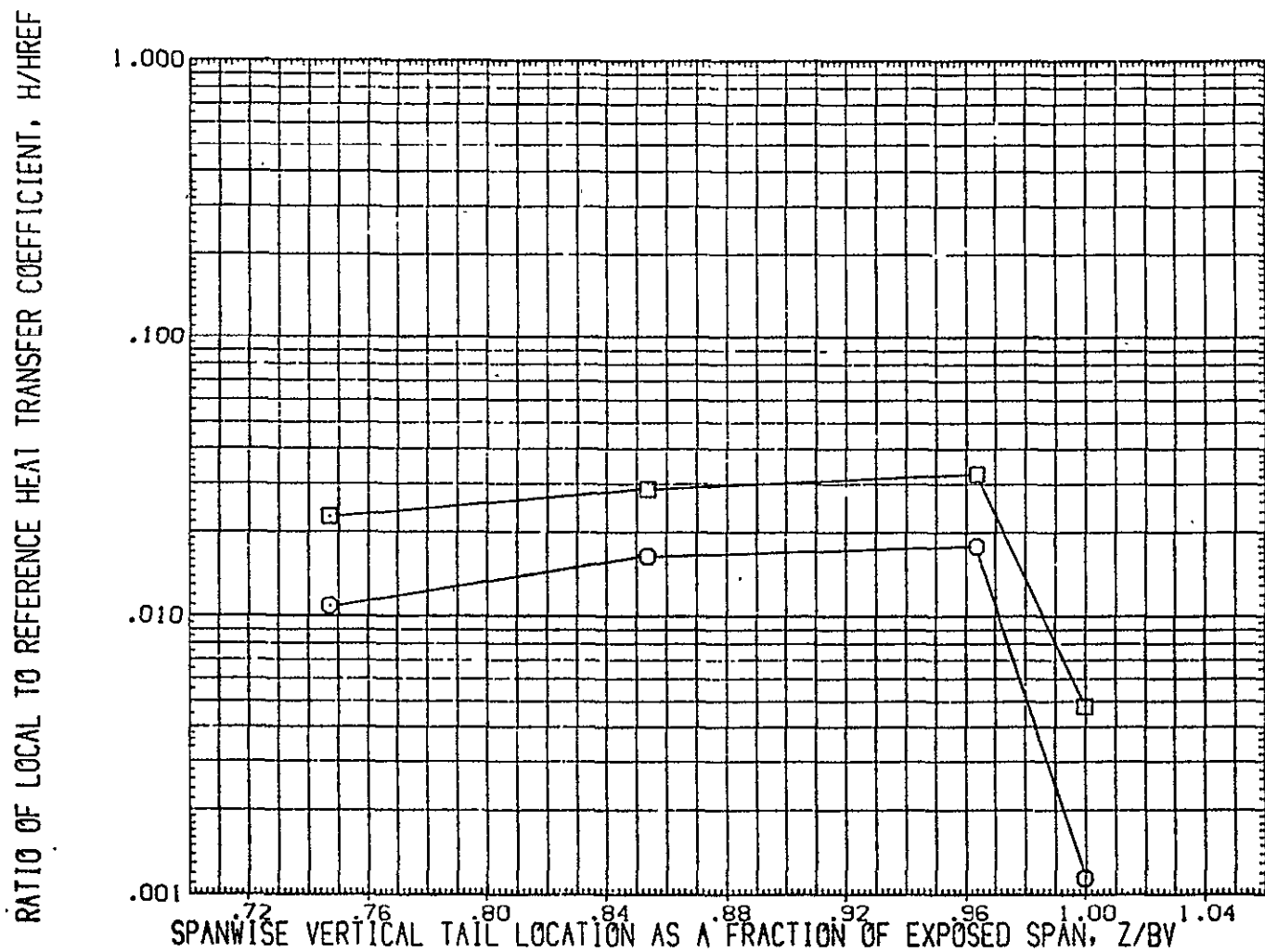


FIG.32 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=30

MACH = 15.880 HAW/HT= 1.000 G/GENO= 40.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGB12)	OH12/H21 (CAL HST 173-100) 37 0	FUSELAGE .286	35.000	.000
(JUGB17)	OH12/H21 (CAL HST 173-100) 37 0	FUSELAGE .983	35.000	.000

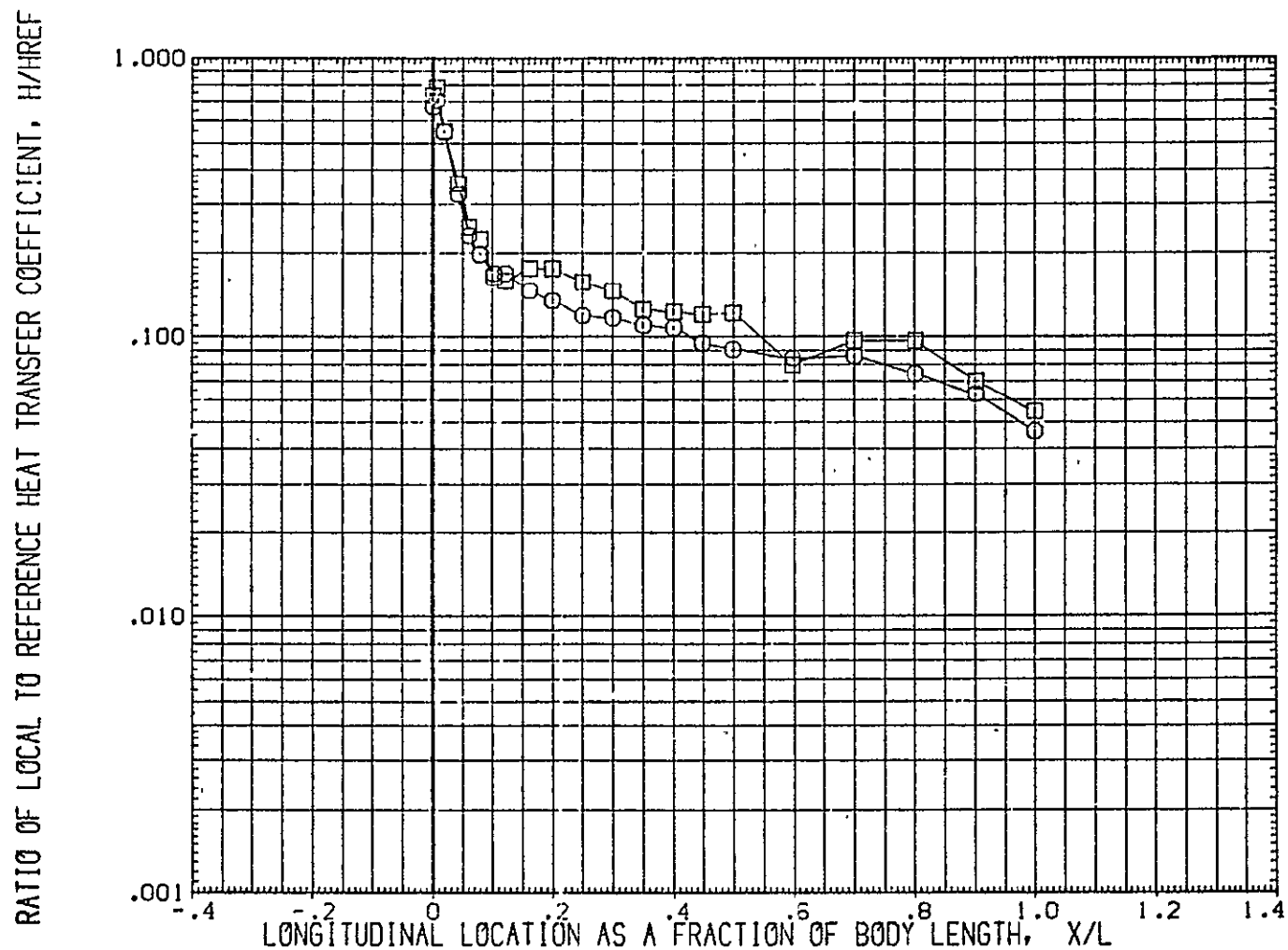


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= .850 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RV/L	ALPHA	BETA
(EUG812)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .266	35.000	.000
(JUG817)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .983	35.000	.000

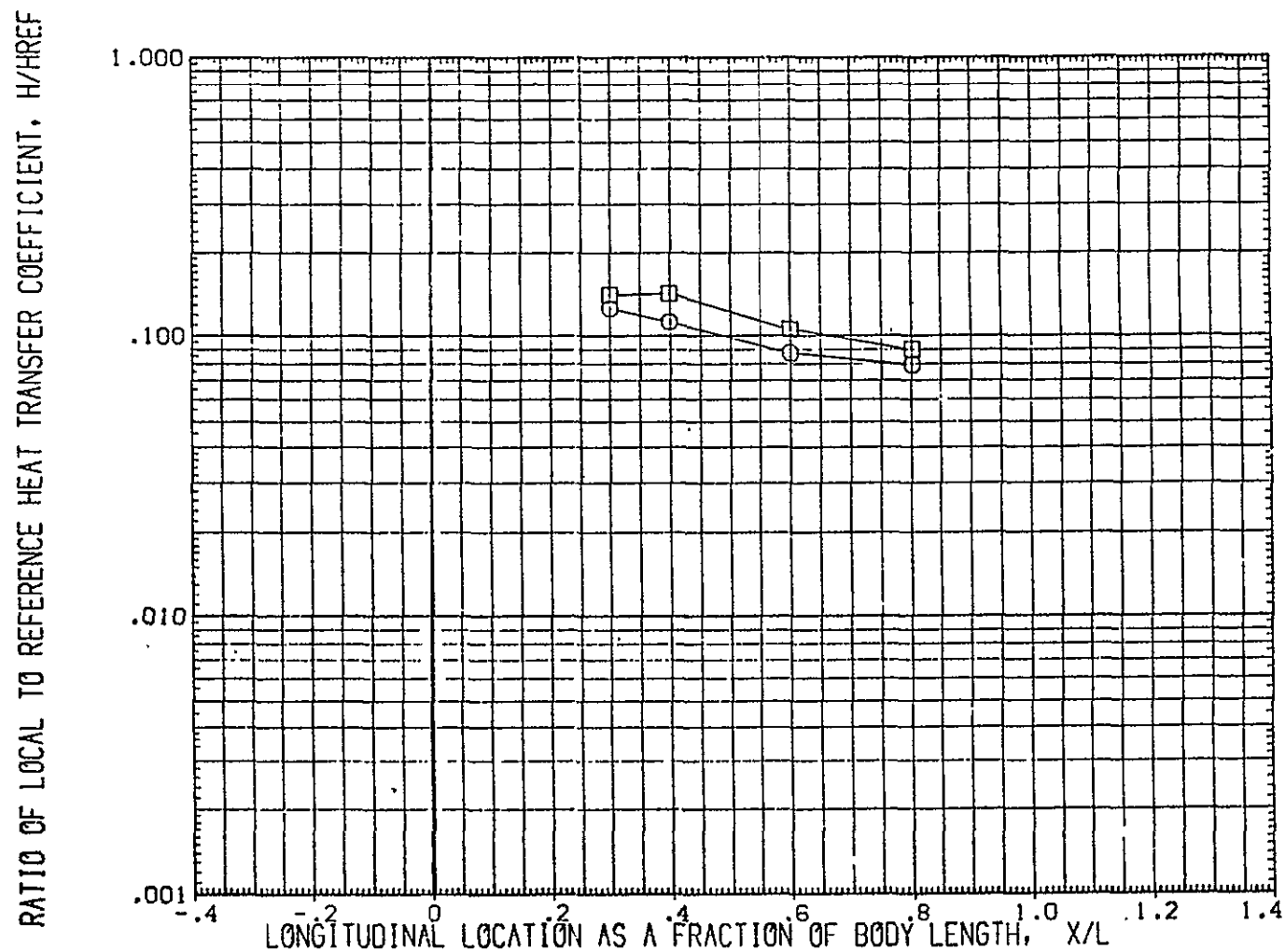


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= .850 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGB12)	OH12/IH21 (CAL HST 173-100) 37 O	.266	35.000	.000
(JUGB17)	OH12/IH21 (CAL HST 173-100) 37 C	.983	35.000	.000

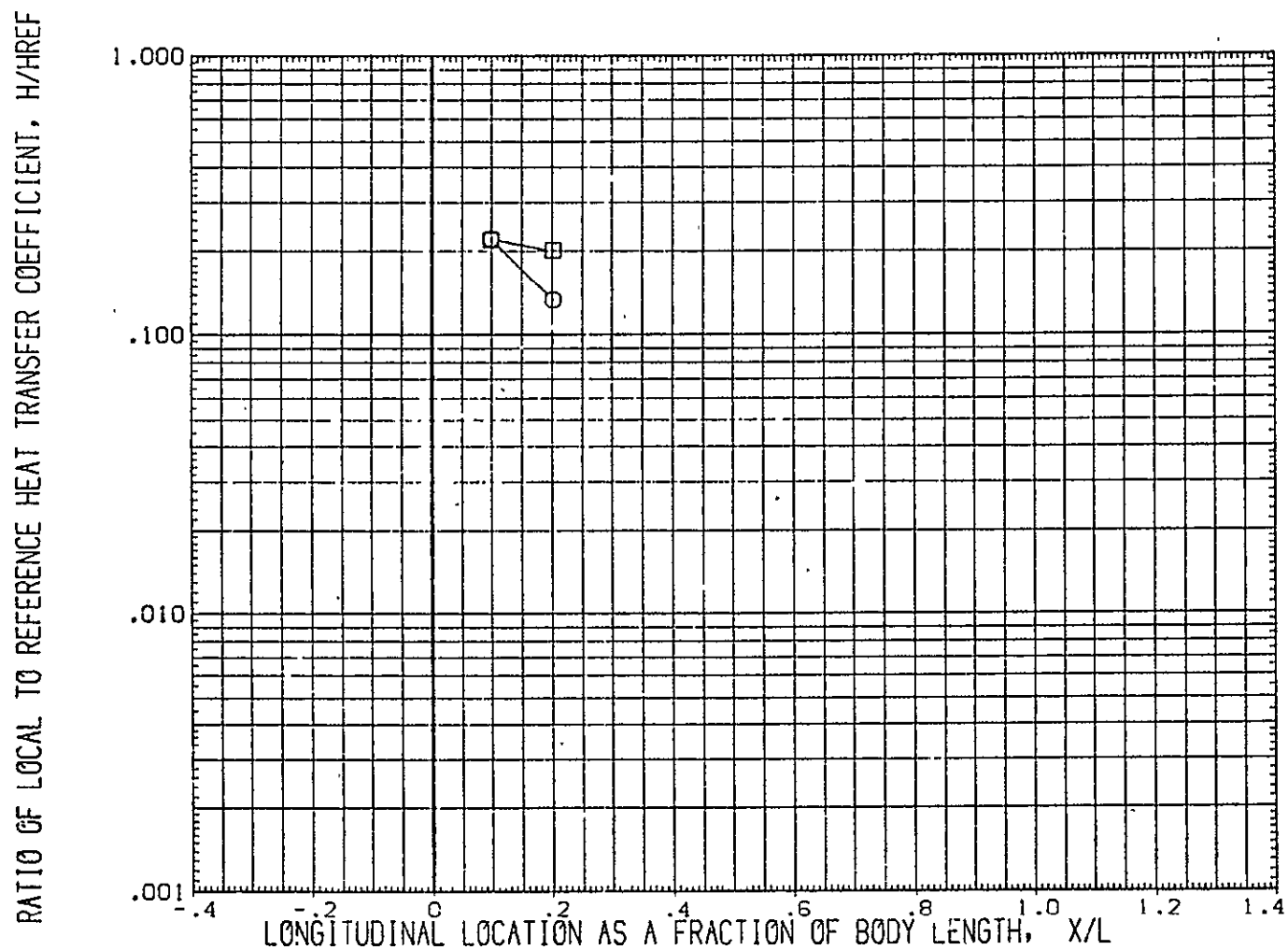


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= .850 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA
(EUGB12)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .266	35.000	.000
(JUGB17)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .983	35.000	.000

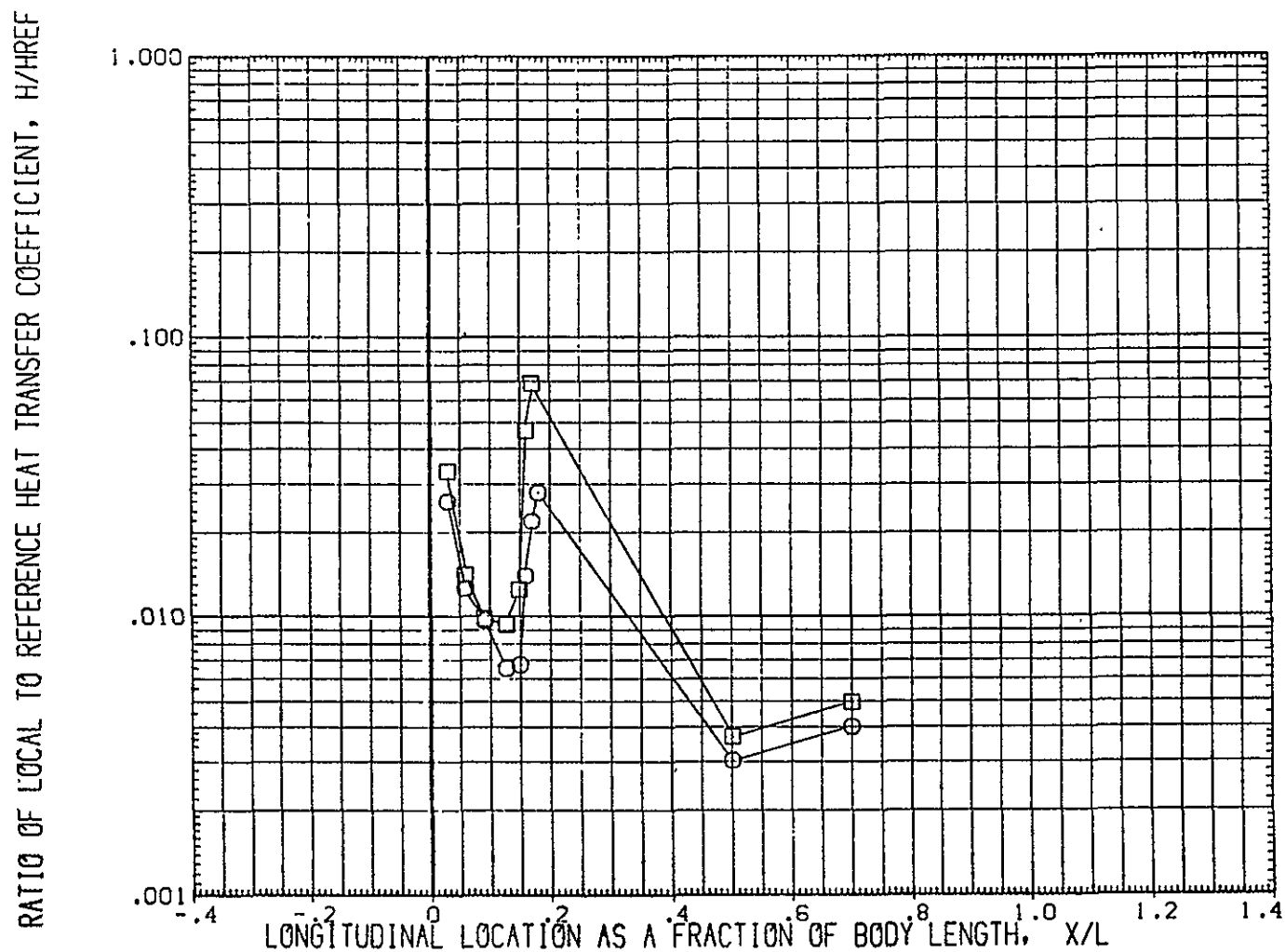


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= .850 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGB12)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .266	35.000	.000
(JUGB17)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .983	35.000	.000

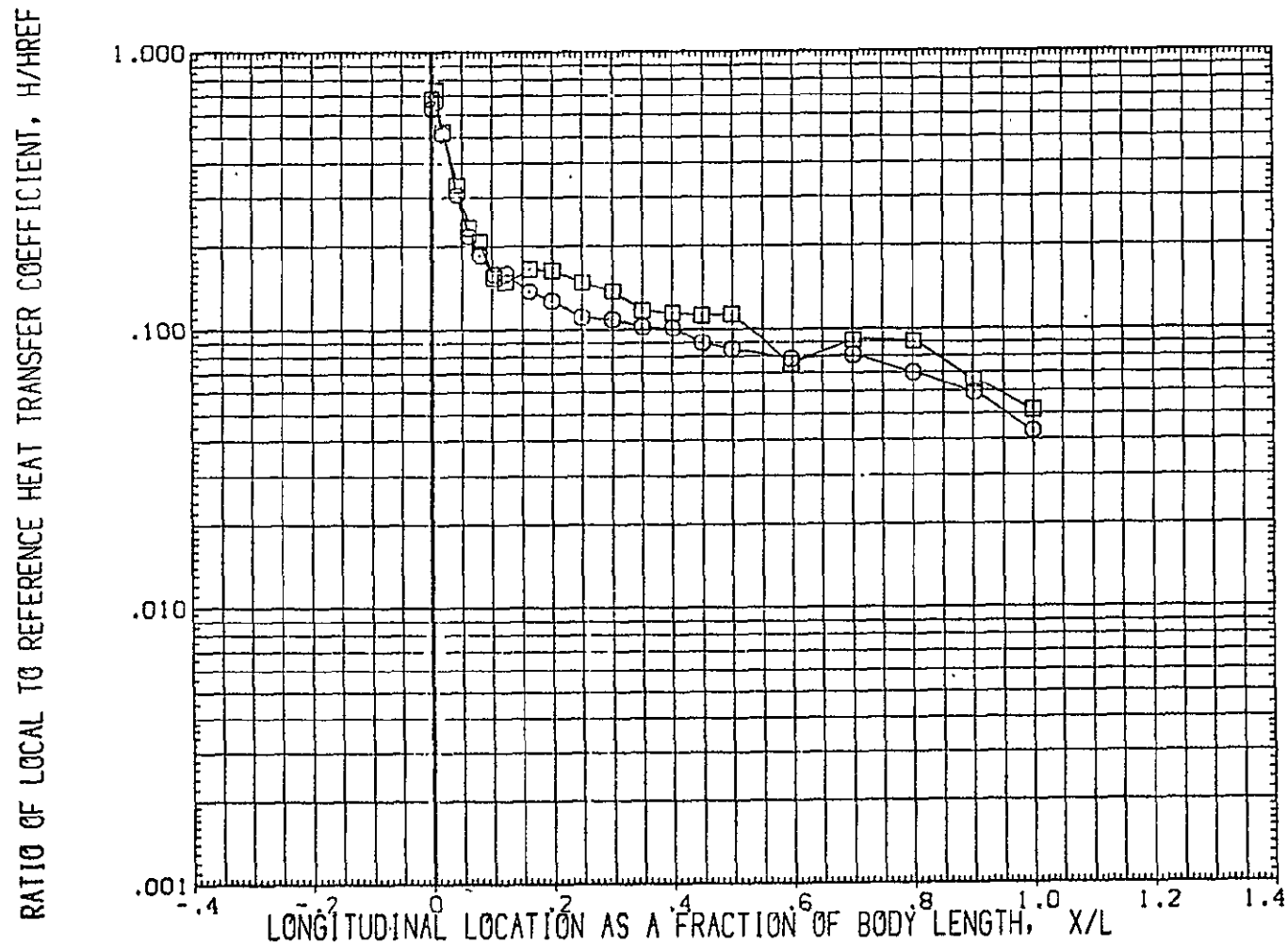


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= .900 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PH/L	ALPHA	BETA	
(EUG812)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.266	35.000	.000
(JUG817)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE	.983	35.000	.000

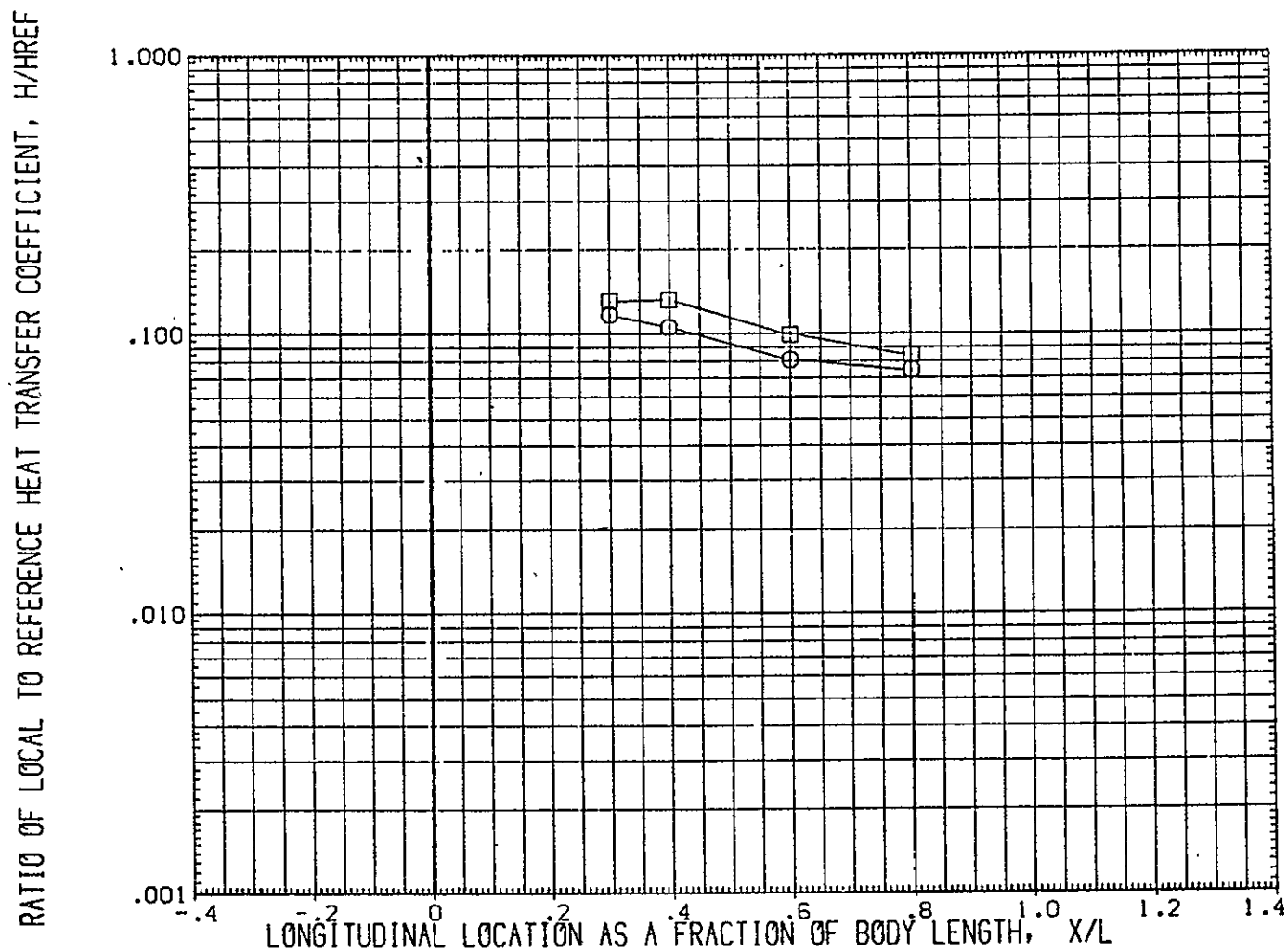


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= .900 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGB12)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .266	35.000	.000
(JUGB17)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .983	35.000	.000

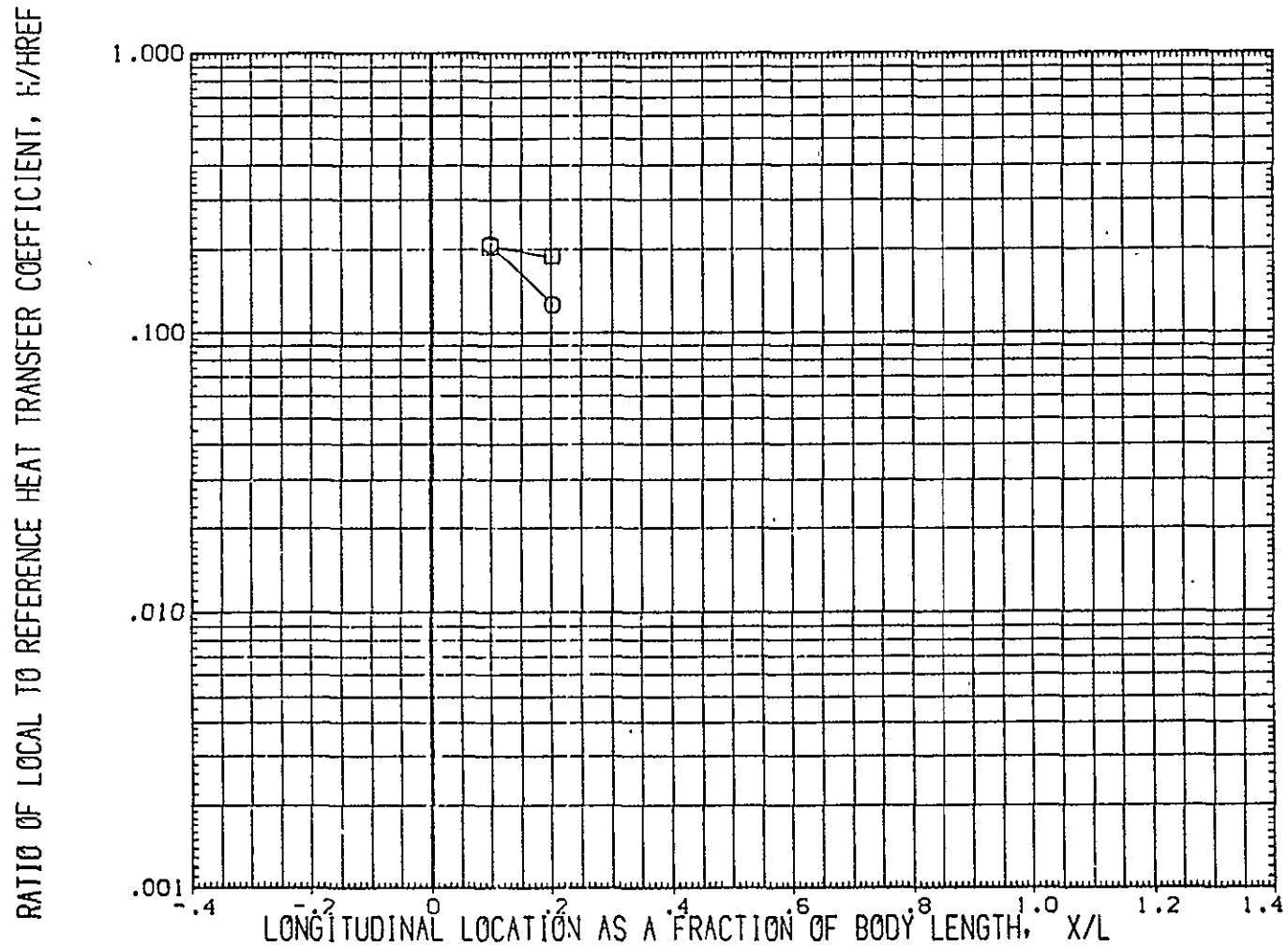


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35
MACH = 12.100 HAW/HT= .900 PHI = 30.000 PAGE 955

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGB12)	OH12/1H21 (CAL HST 173-100) 37 0	.266	35.000	.000
(JUGB17)	OH12/1H21 (CAL HST 173-100) 37 0	.983	35.000	.000

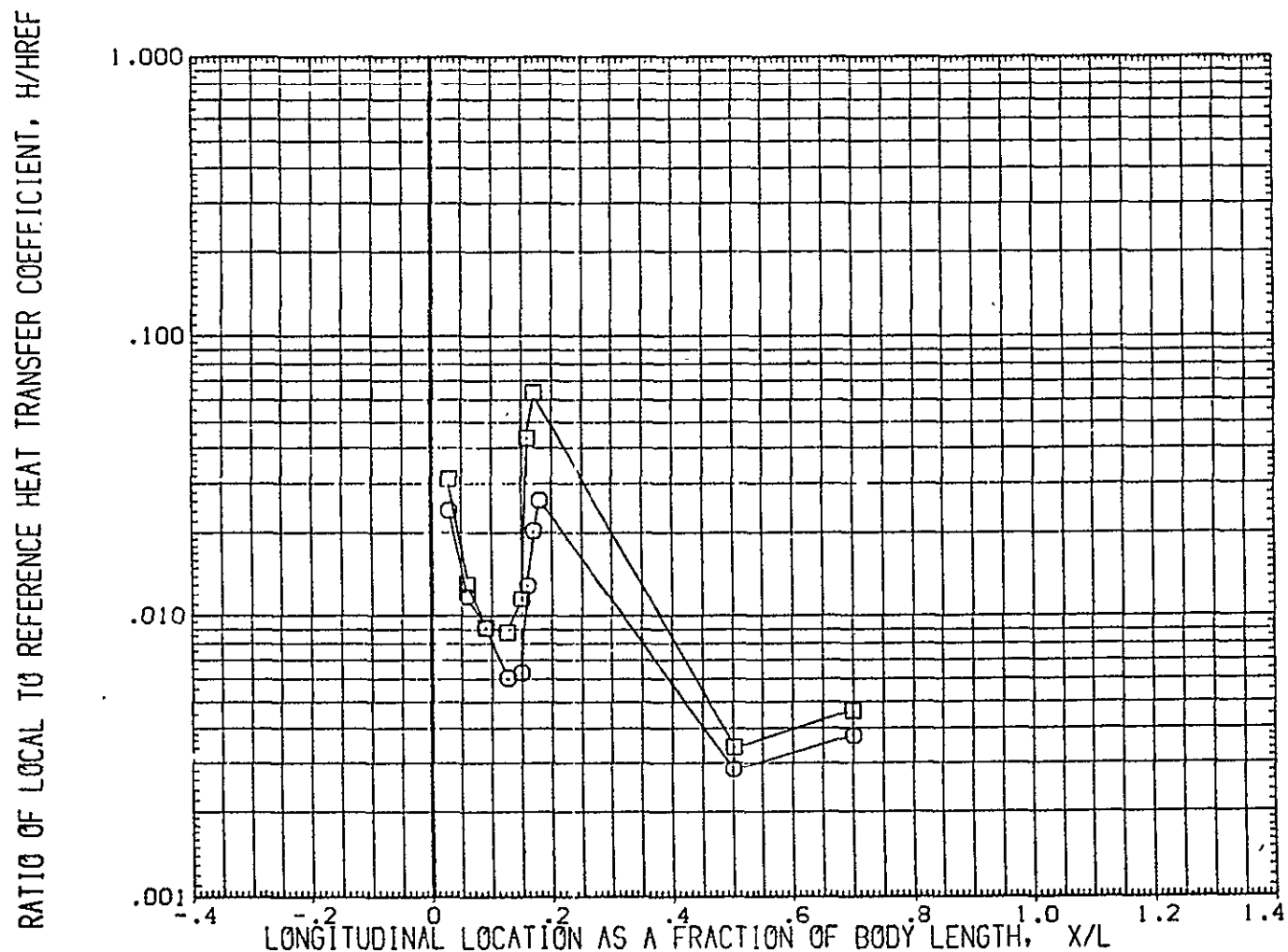


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35
MACH = 12.100 HAW/HT= .900 PHI = 180.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUG812)	0H12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .266	35.000	.000
(JUG817)	0H12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .983	35.000	.000

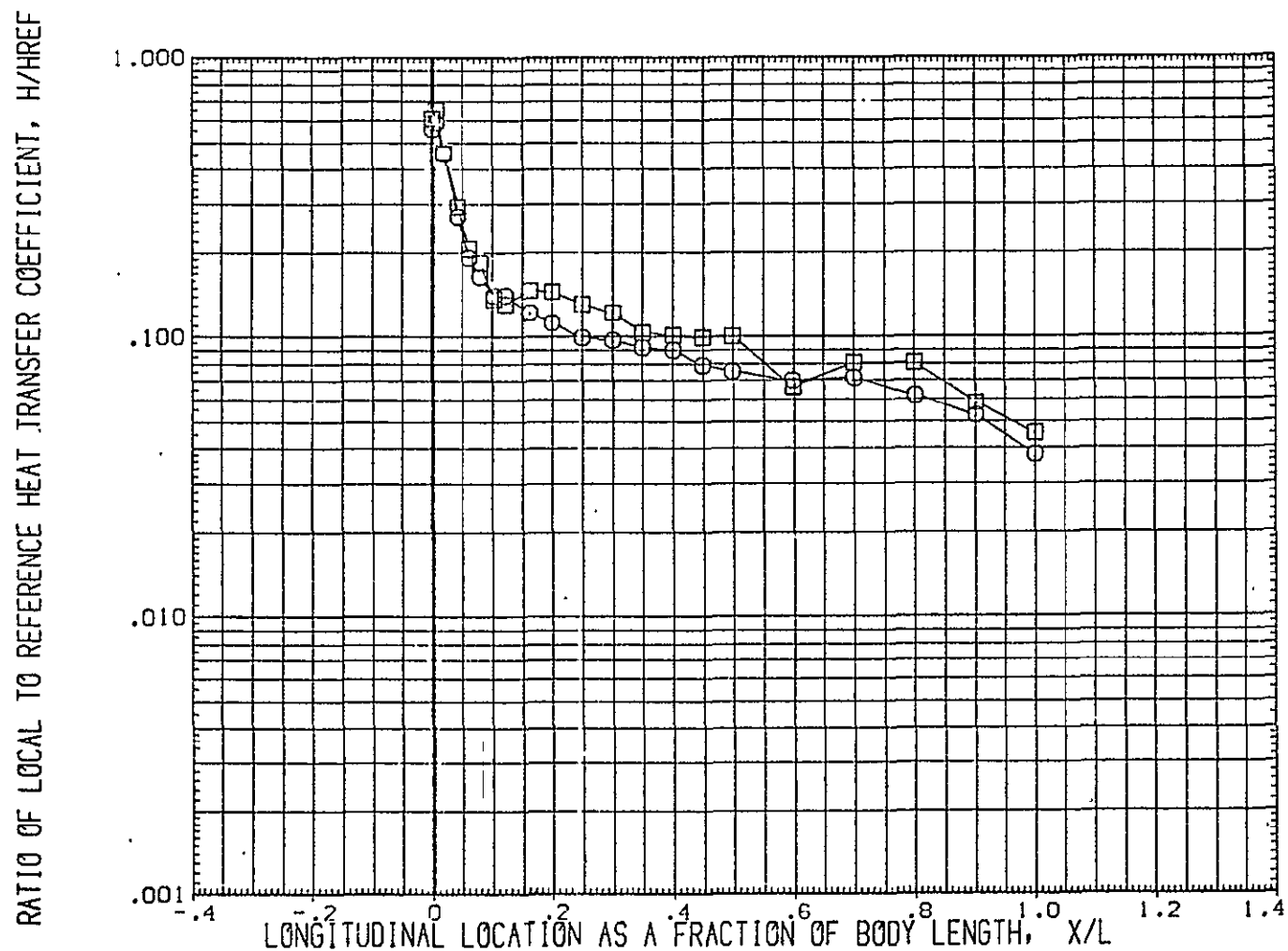


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER $\alpha=35$
MACH = 12.100 HAW/HT= 1.000 PHI = .000 PAGE 957

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(EUG812)	OH12/1421 (CAL HST 173-100) 37 0	$\epsilon_{USELAGE}$.286	35.000	.000
(JUG817)	OH12/1421 (CAL HST 173-100) 37 0	$\epsilon_{USELAGE}$.983	35.000	.000

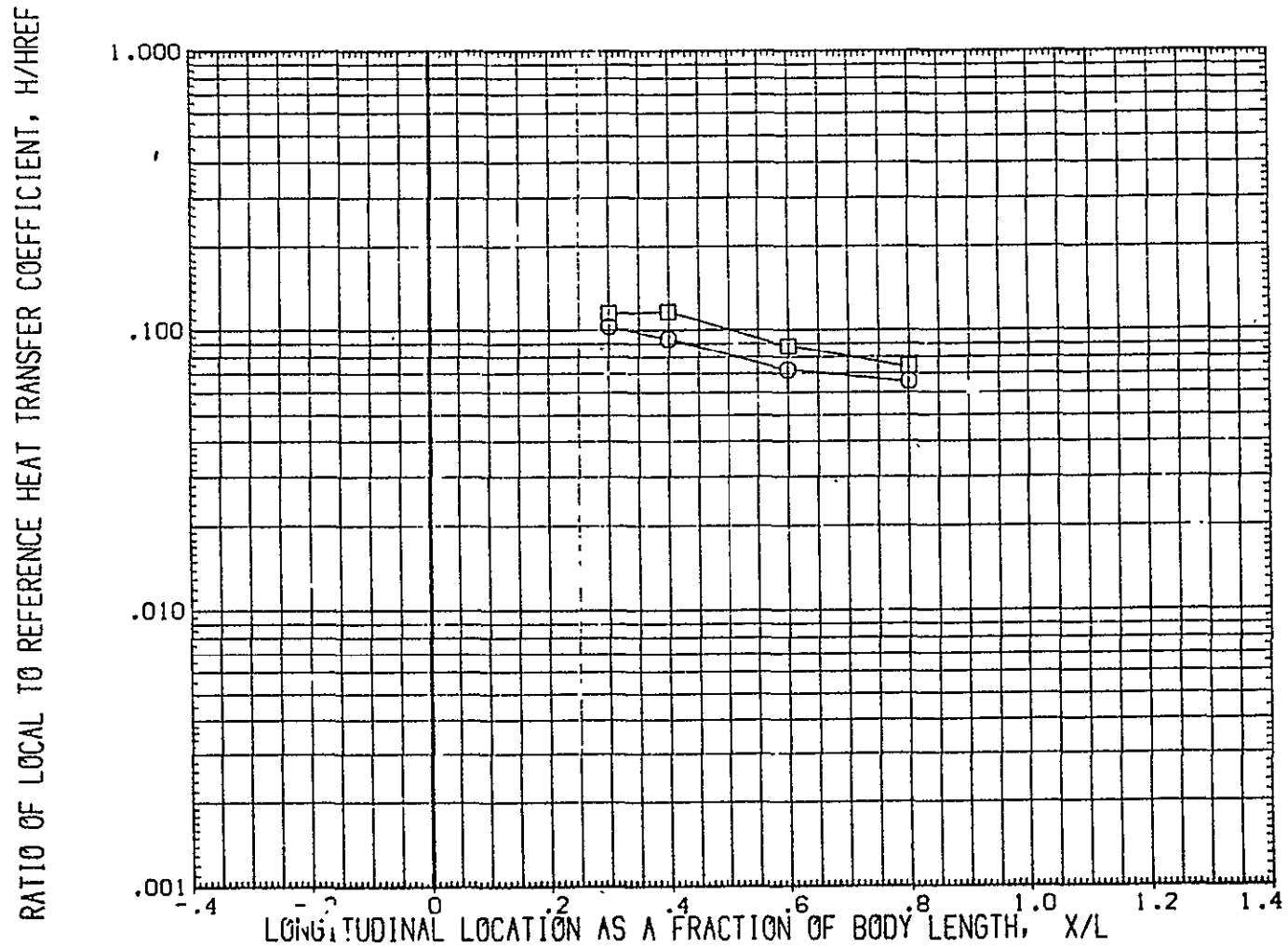


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35
MACH = 12.100 HAW/HT= 1.000 PHI = 25.000 PAGE 958

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGB12)	○	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .266	35.000	.000
(JUGB17)	□	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .983	35.000	.000

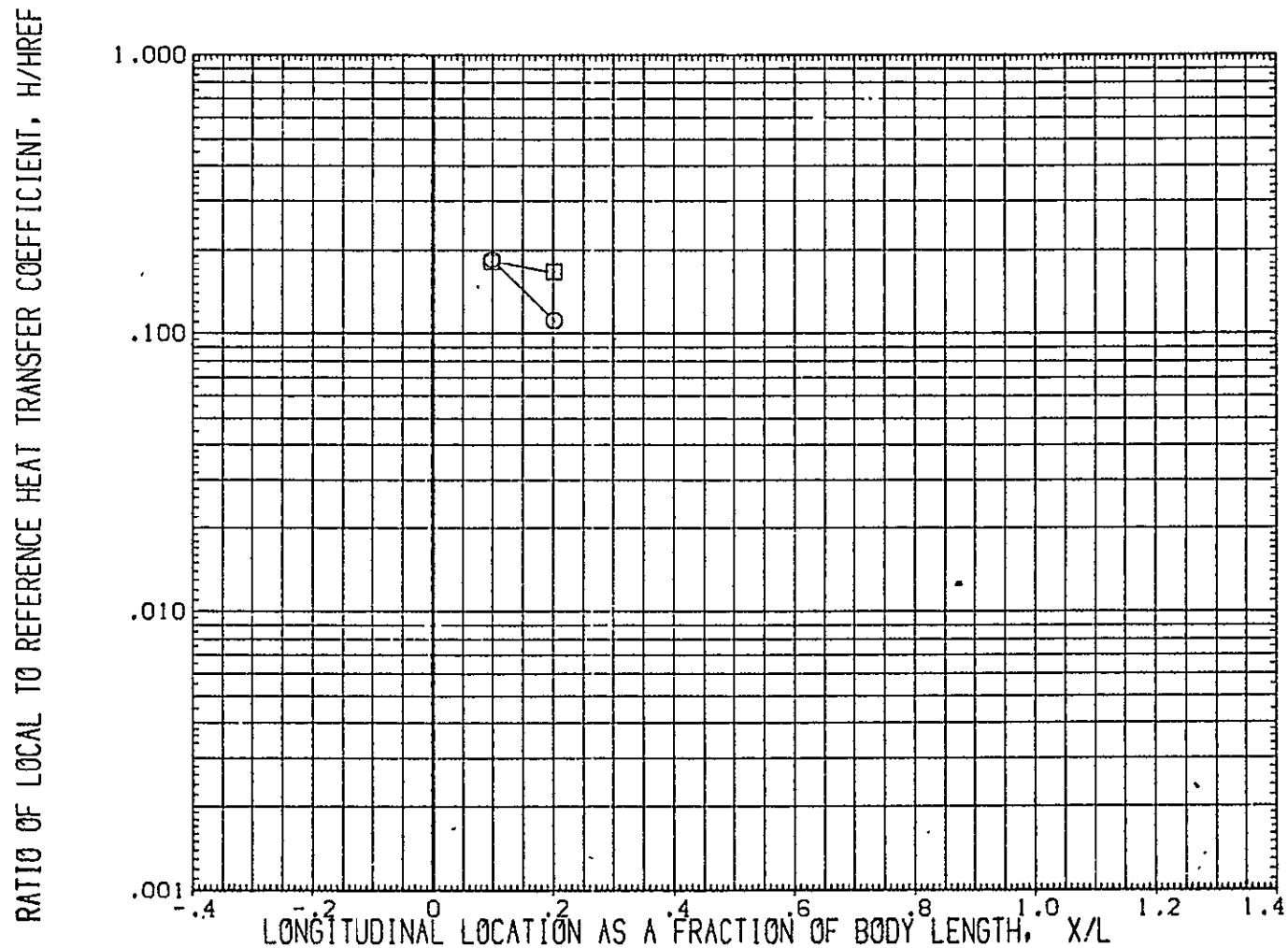


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= 1.000 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGB12)	OH12/1421 (CAL PST 173-100) 37 0	FUSELAGE .266	35.000	.000
(JUGB17)	OH12/1421 (CAL PST 173-100) 37 0	FUSELAGE .983	35.000	.000

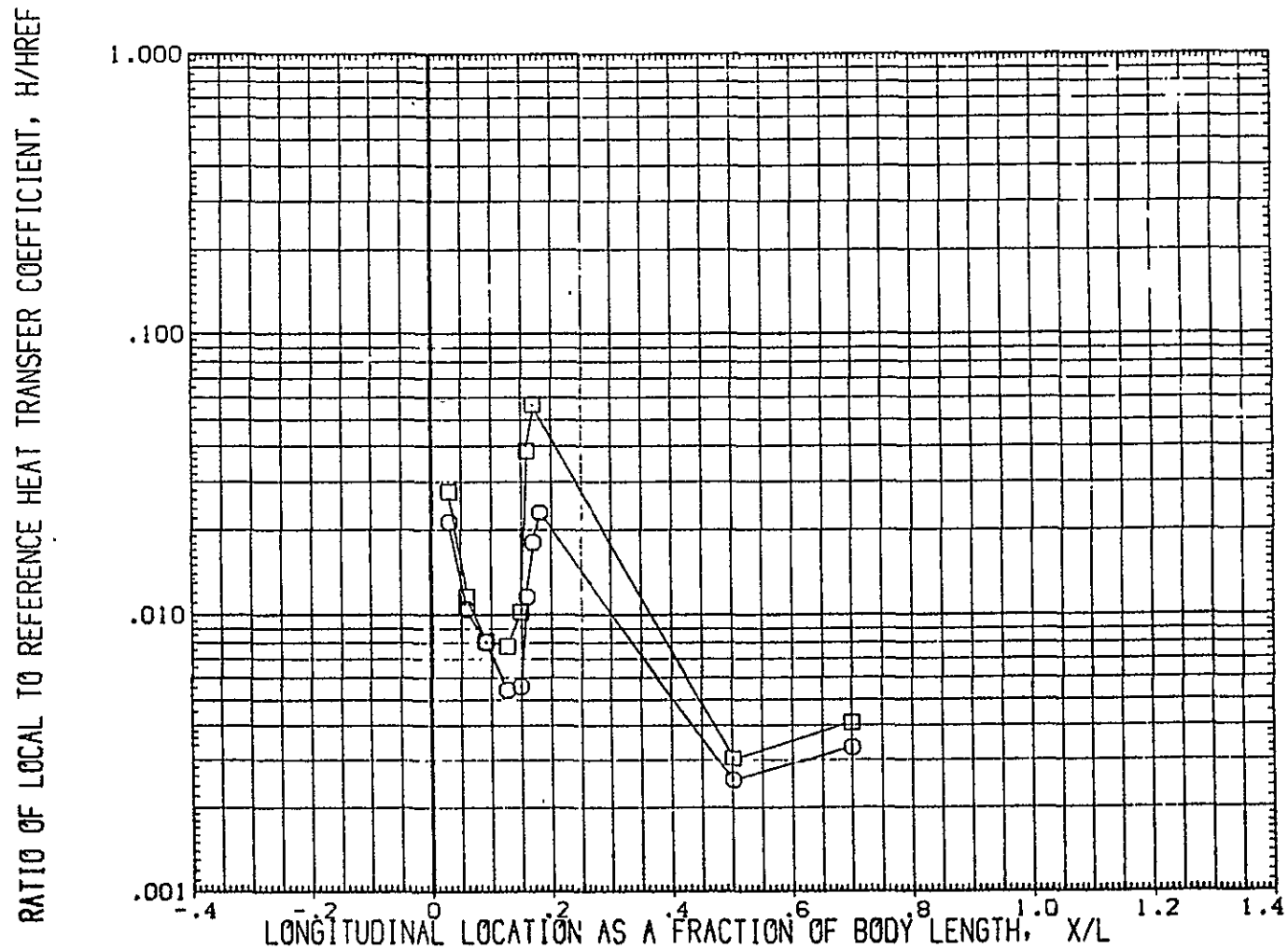


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= 1.000 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA
(FUGB12)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.043	35.000	.000
(1UGB17)	OH12/1H21 (CAL HST 173-100) 37 0 FUSELAGE	.254	35.000	.000

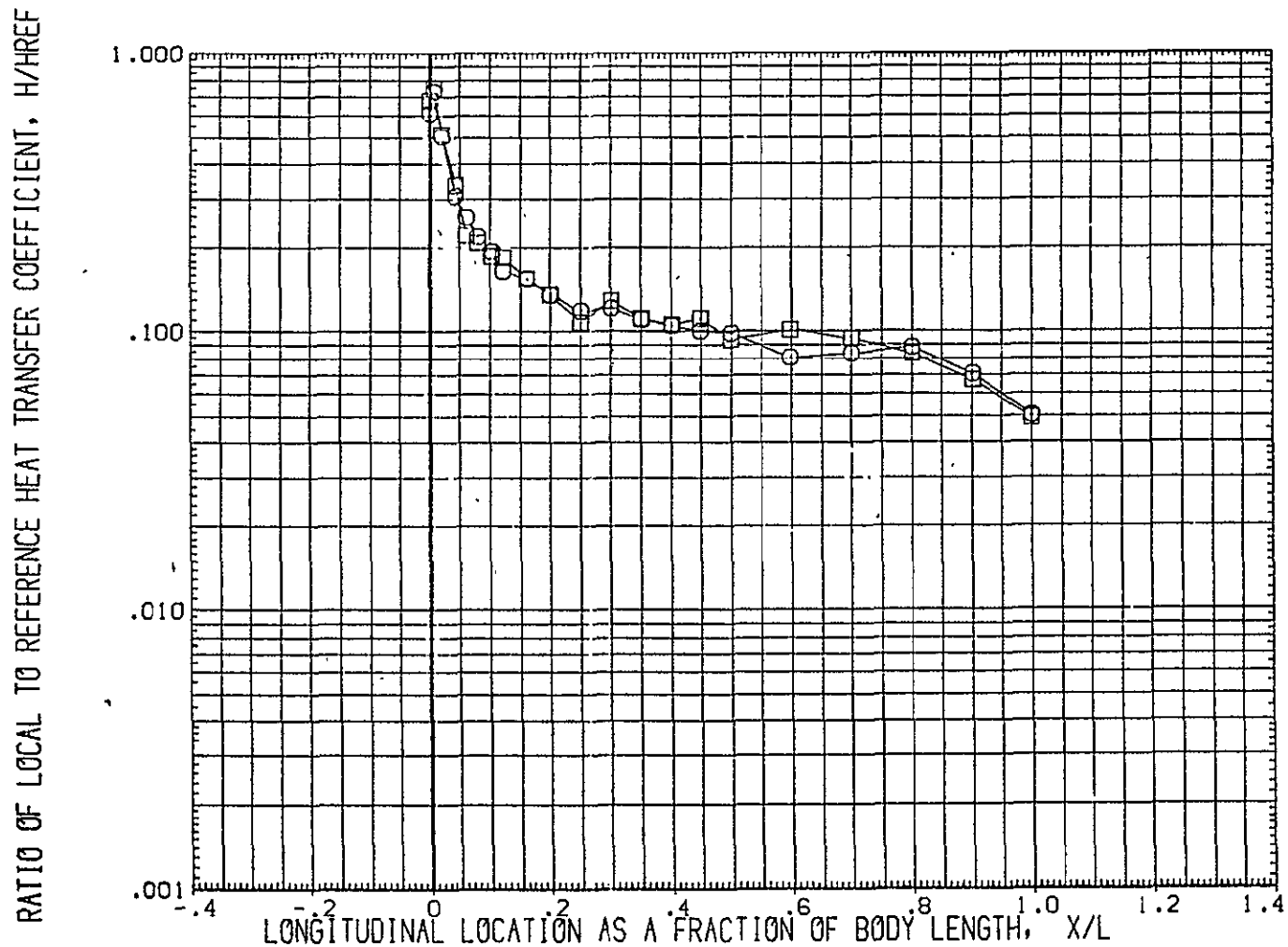


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= .850 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGB12)	CH12/1H21 (CAL HST 173-100) 37 0	USELAGE	.043	35.000	.000
(FUGB17)	CH12/1H21 (CAL HST 173-100) 37 0	USELAGE	.254	35.000	.000

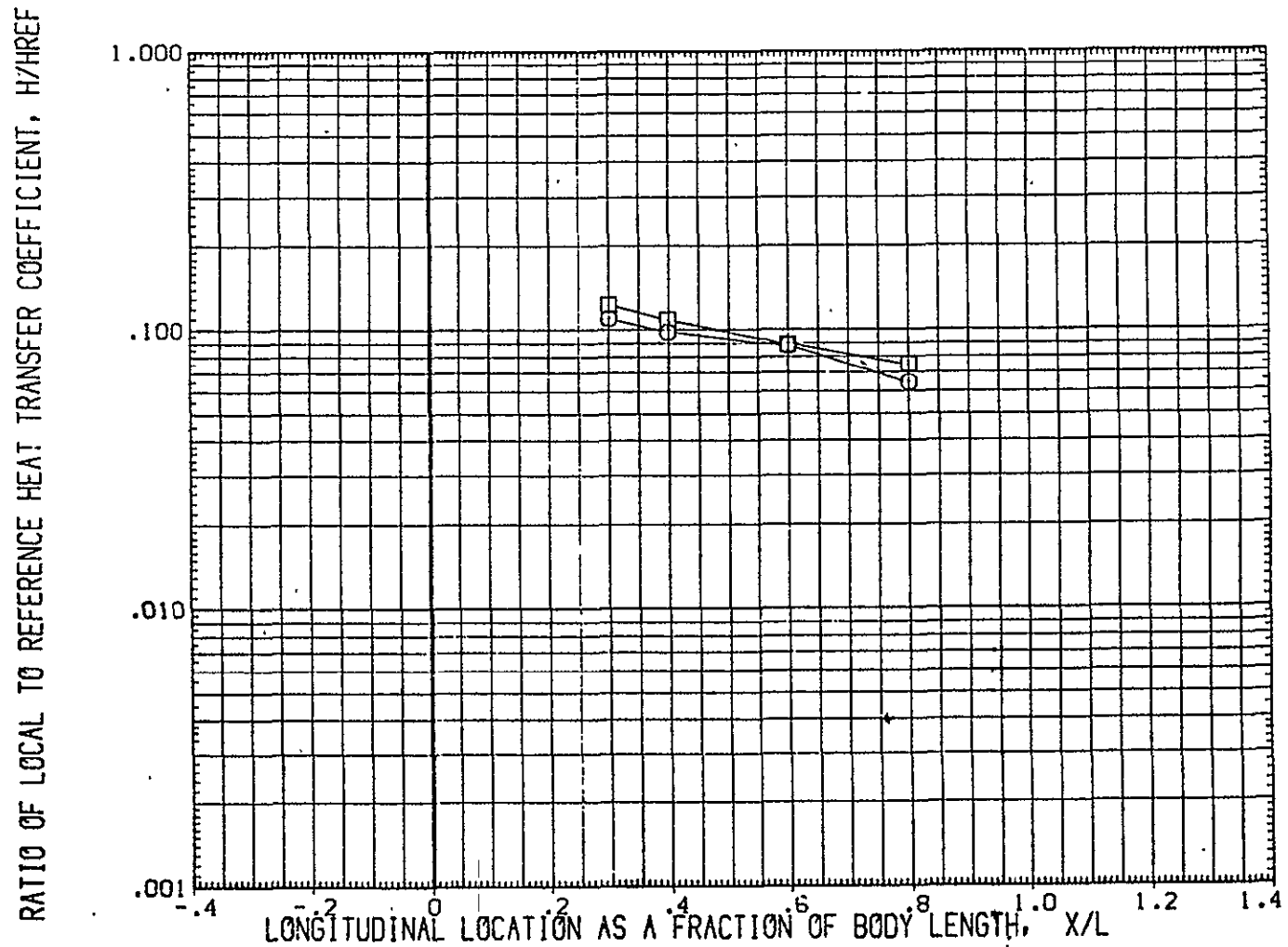


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= .850 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGB12)	OH12/1421 (CAL HST 173-100) 37 0	FLSE/LAGE	.043	35.000	.000
(1UGB17)	OH12/1421 (CAL HST 173-100) 37 0	FLSE/LAGE	.254	35.000	.000

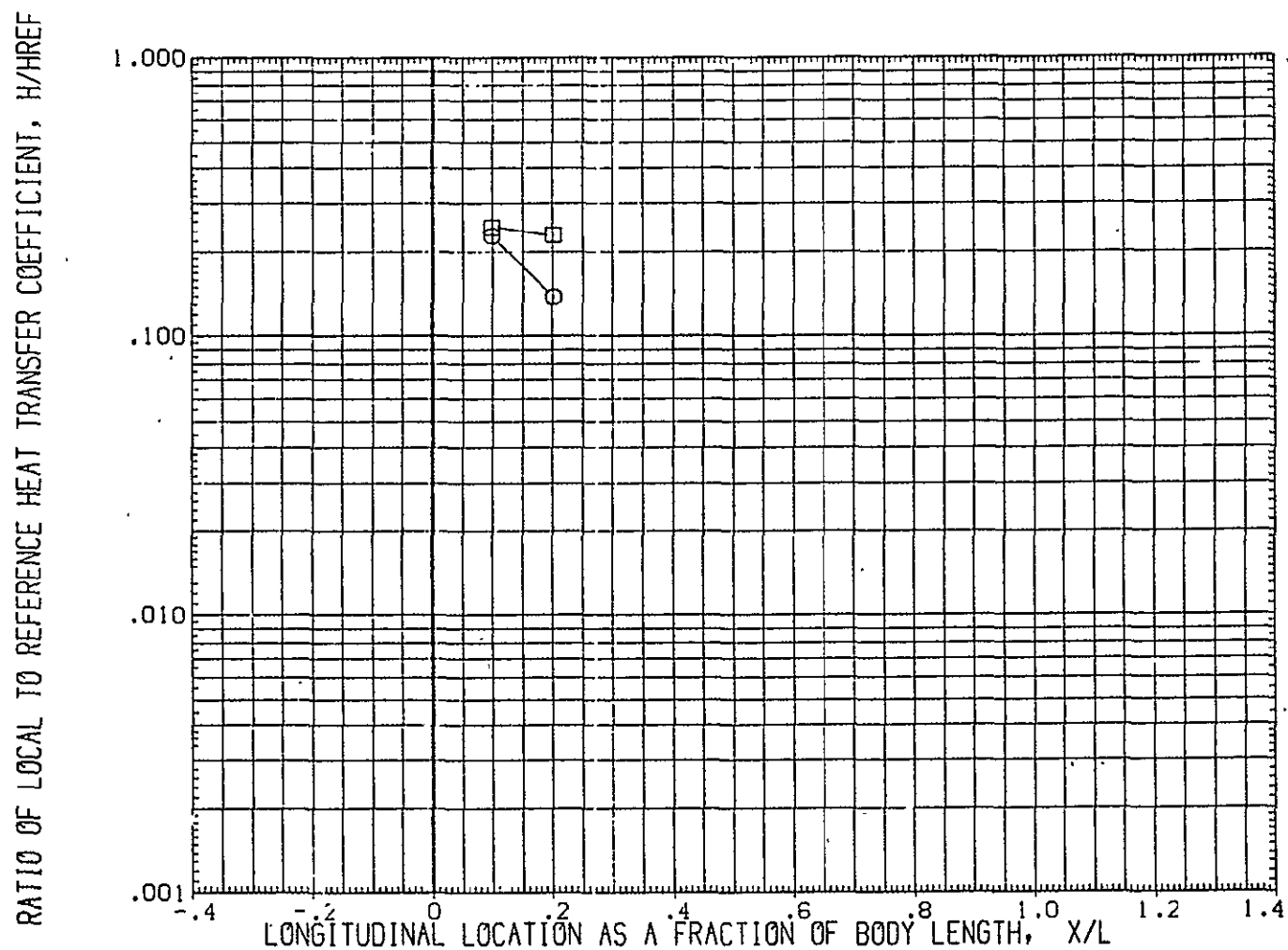


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35
MACH = 15.880 HAW/HT= .950 PHI = 30.000 PAGE 963

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	A. PHA	BETA
(FUGB12)	0412/1421 (CAL HST 173-100) 37 0	FUSELAGE	.043	25.000
(TUGB17)	0412/1421 (CAL HST 173-100) 37 0	FUSELAGE	.254	25.000

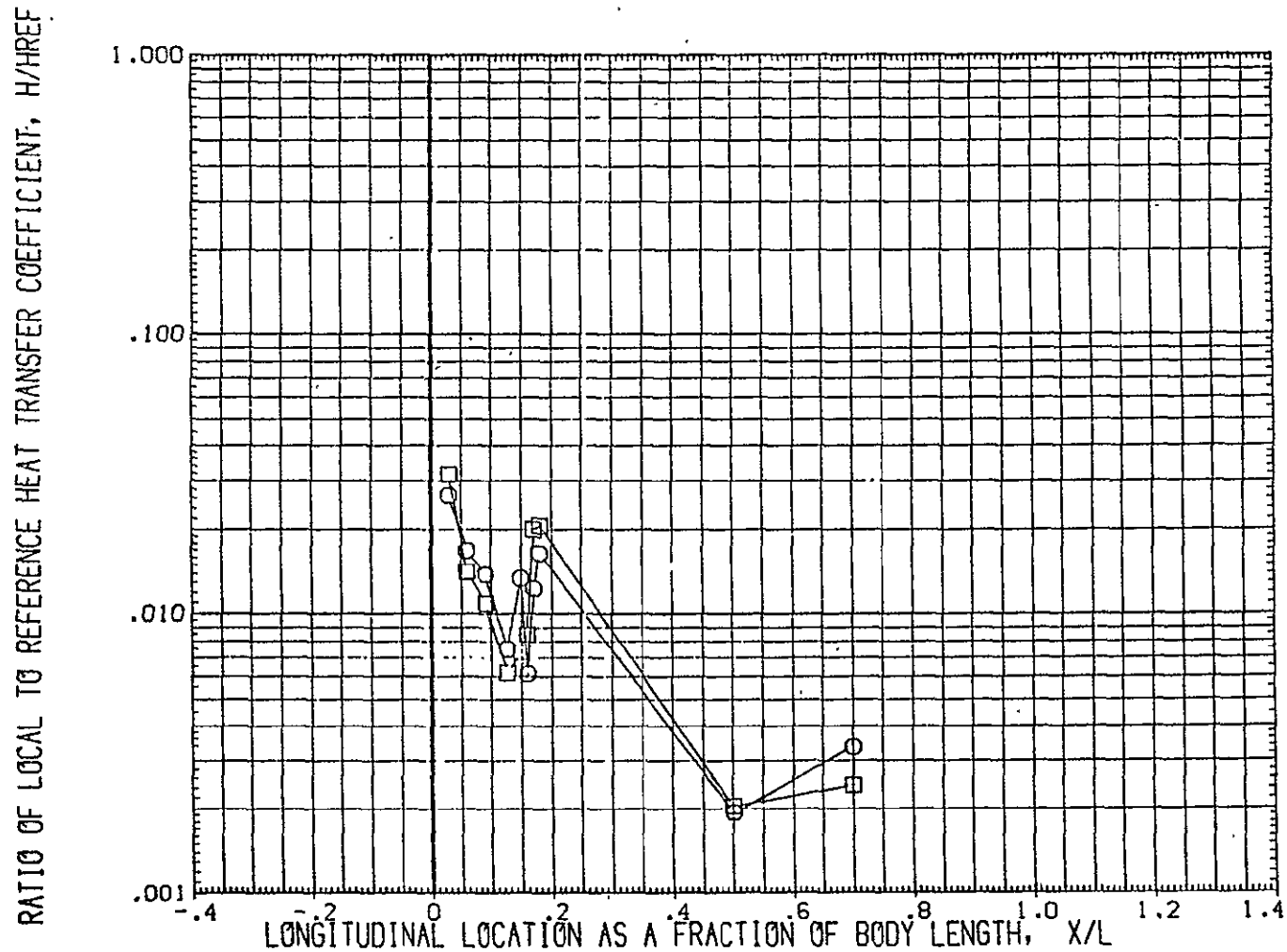


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= .850 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB12)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .043	35.000	.000
(TUGB17)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .254	35.000	.000

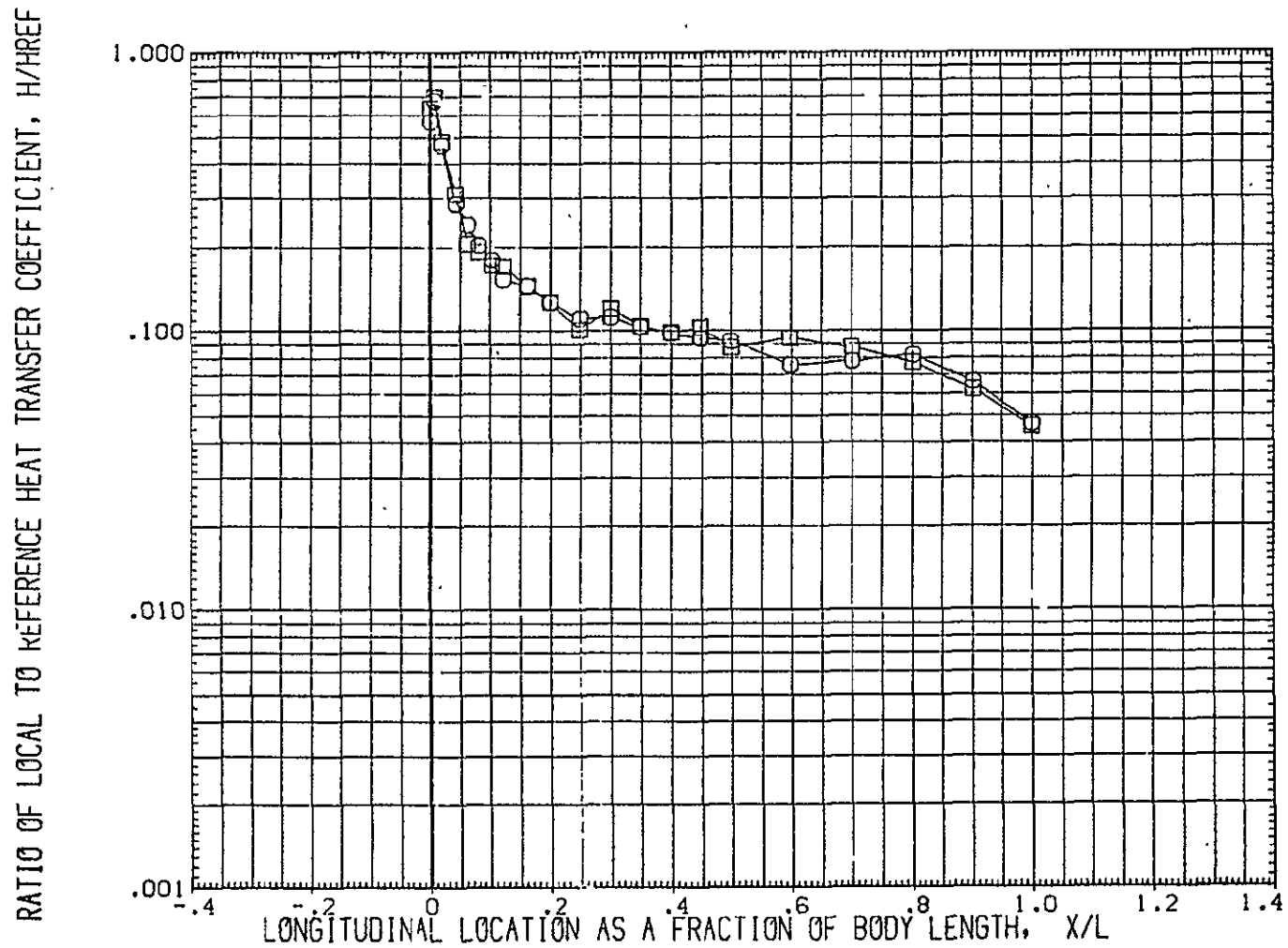


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= .900 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB12)	GH12/IH21 (CAL HST 173-100) 37 C	FUSFLAGE .043	35.000	.000
(FUGB17)	GH12/IH21 (CAL HST 173-100) 37 O	FUSFLAGE .254	35.000	.000

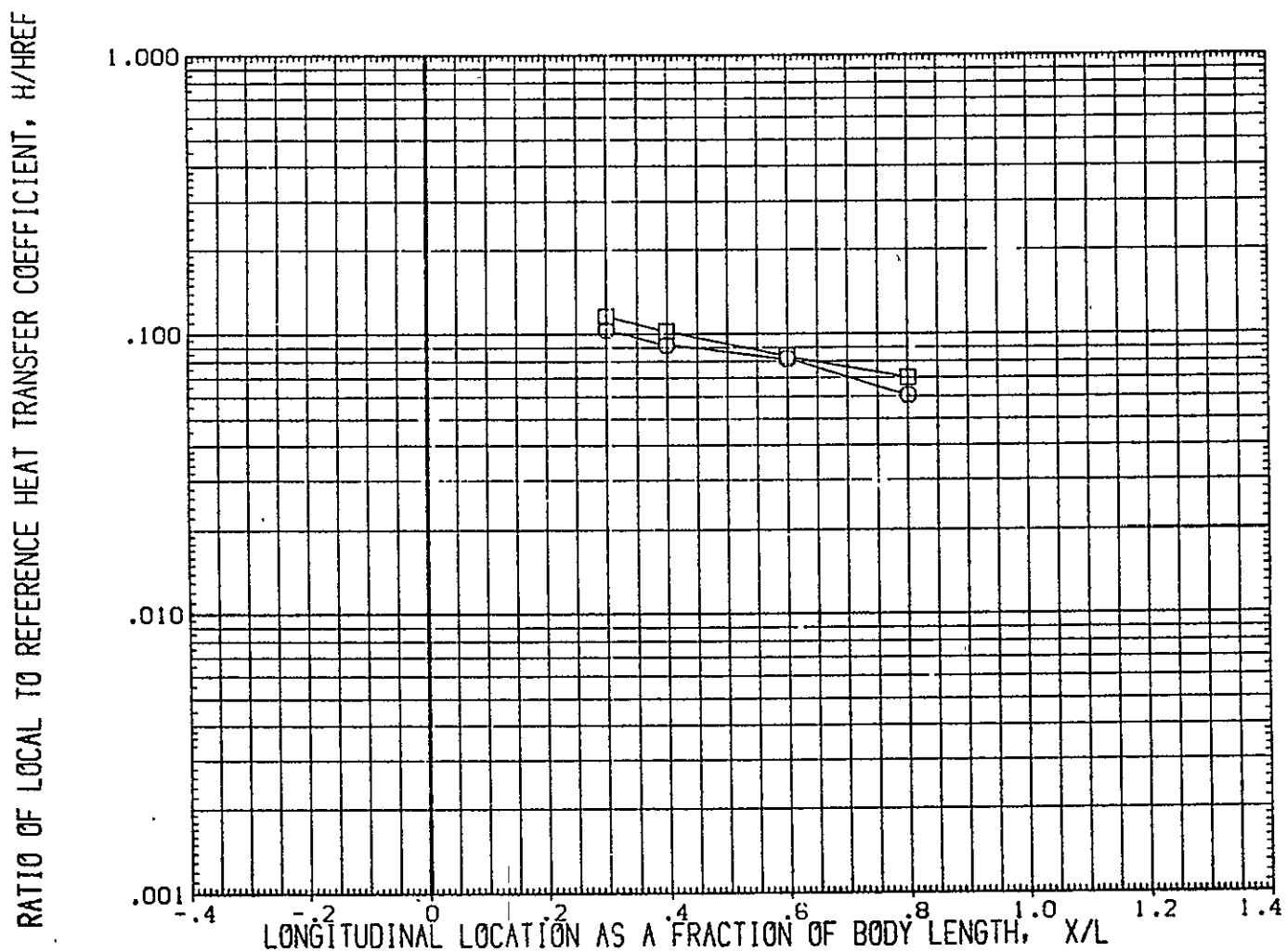


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= .900 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB12)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .043	35.000	.000
(1UGB17)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .254	35.000	.000

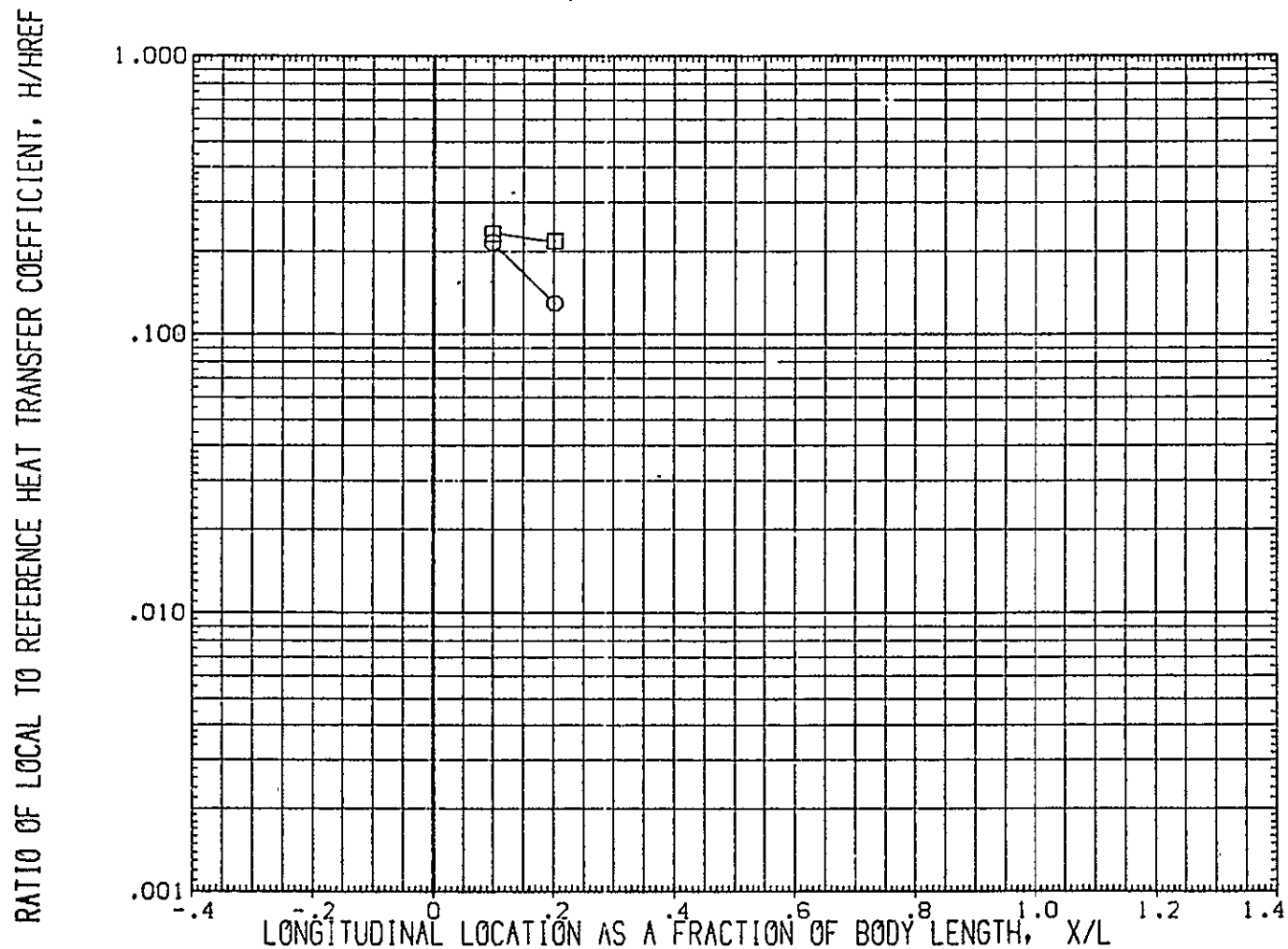


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= .900 PHI = 30.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB12)	CH12/1421 (CAL HST 173-100) 37 0	FUSELAGE .043	35.000	.000
(FUGB17)	CH12/1421 (CAL HST 173-100) 37 0	FUSELAGE .254	35.000	.000

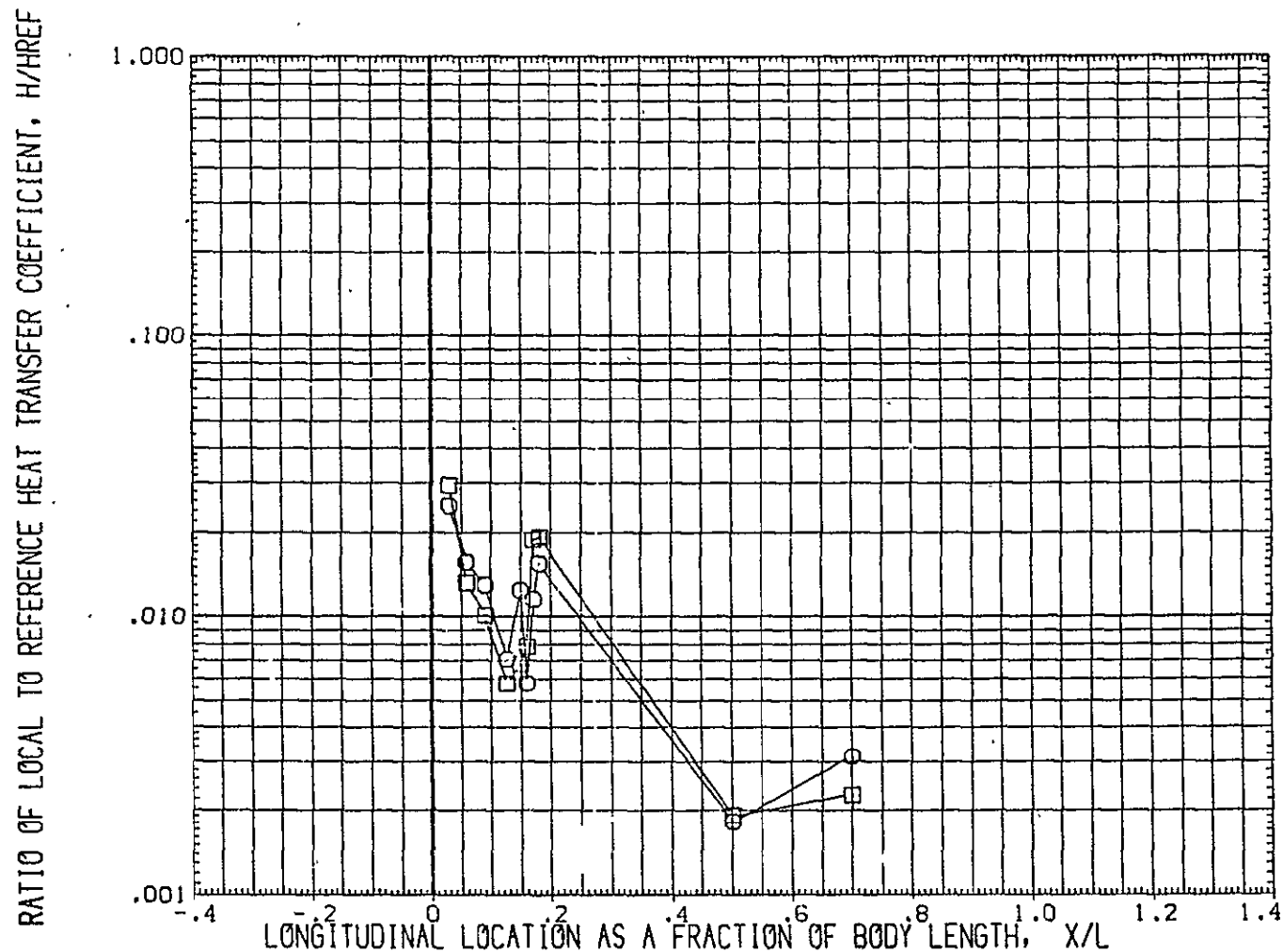


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= .900 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB12)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE .043	35.000	.000
(IUGB17)	OH12/IH21 (CAL HST 173-100) 37 0	FUSELAGE .254	35.000	.000

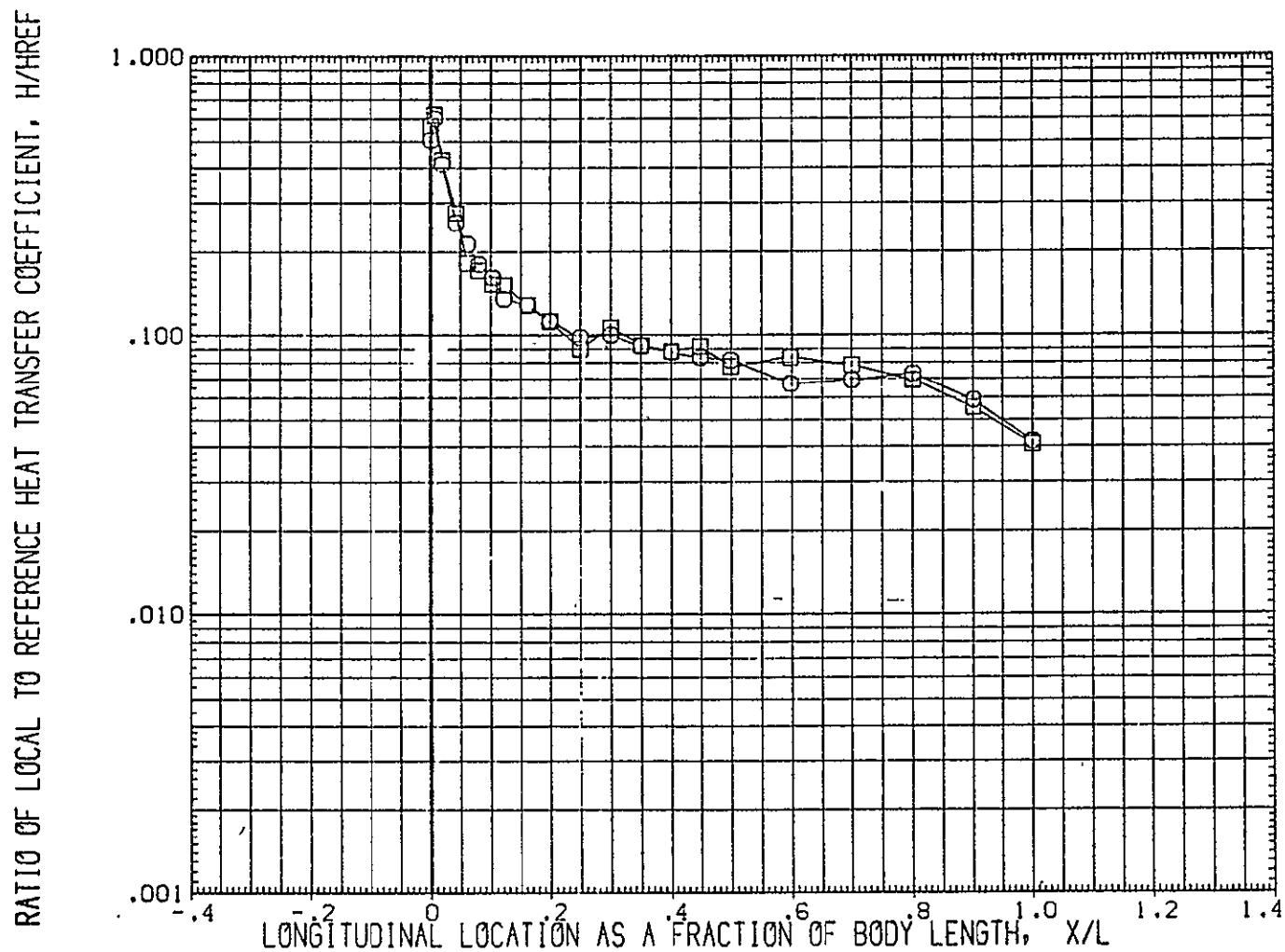


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= 1.000 PHI = .000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB12)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .043	35.000	.000
(1UGB17)	CH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .254	35.000	.000

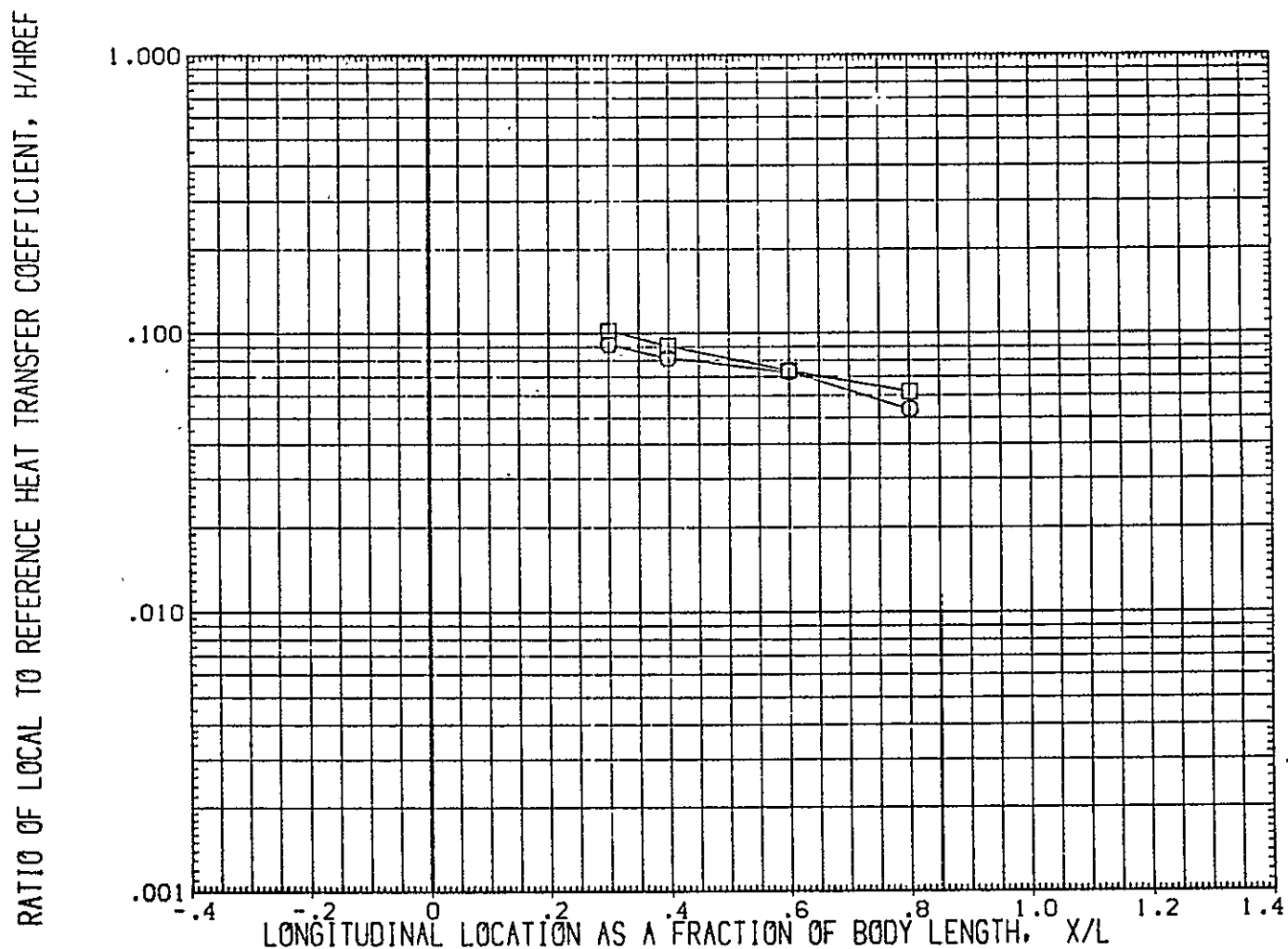


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= 1.000 PHI = 25.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB12)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .043	35.000	.000
(TUGB17)	OH12/1H21 (CAL HST 173-100) 37 0	FUSELAGE .254	35.000	.000

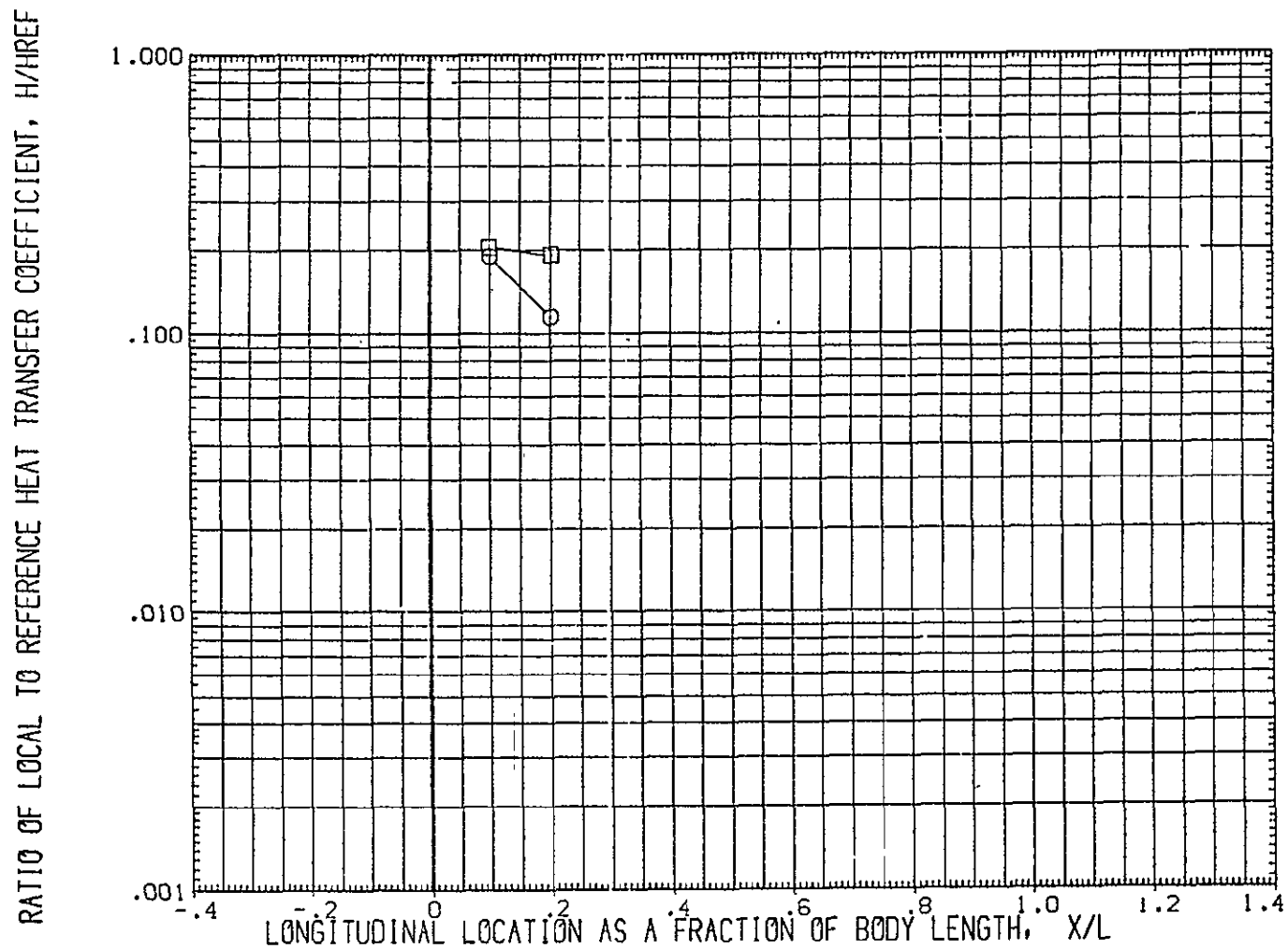


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT = 1.000 PHI = 30.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGB12)	OH12/1421 (CAL 45T 173-100) 37 0	FUSELAGE .043	35.000	.000
(FUGB17)	OH12/1421 (CAL 45T 173-100) 37 0	FUSELAGE .254	35.000	.000

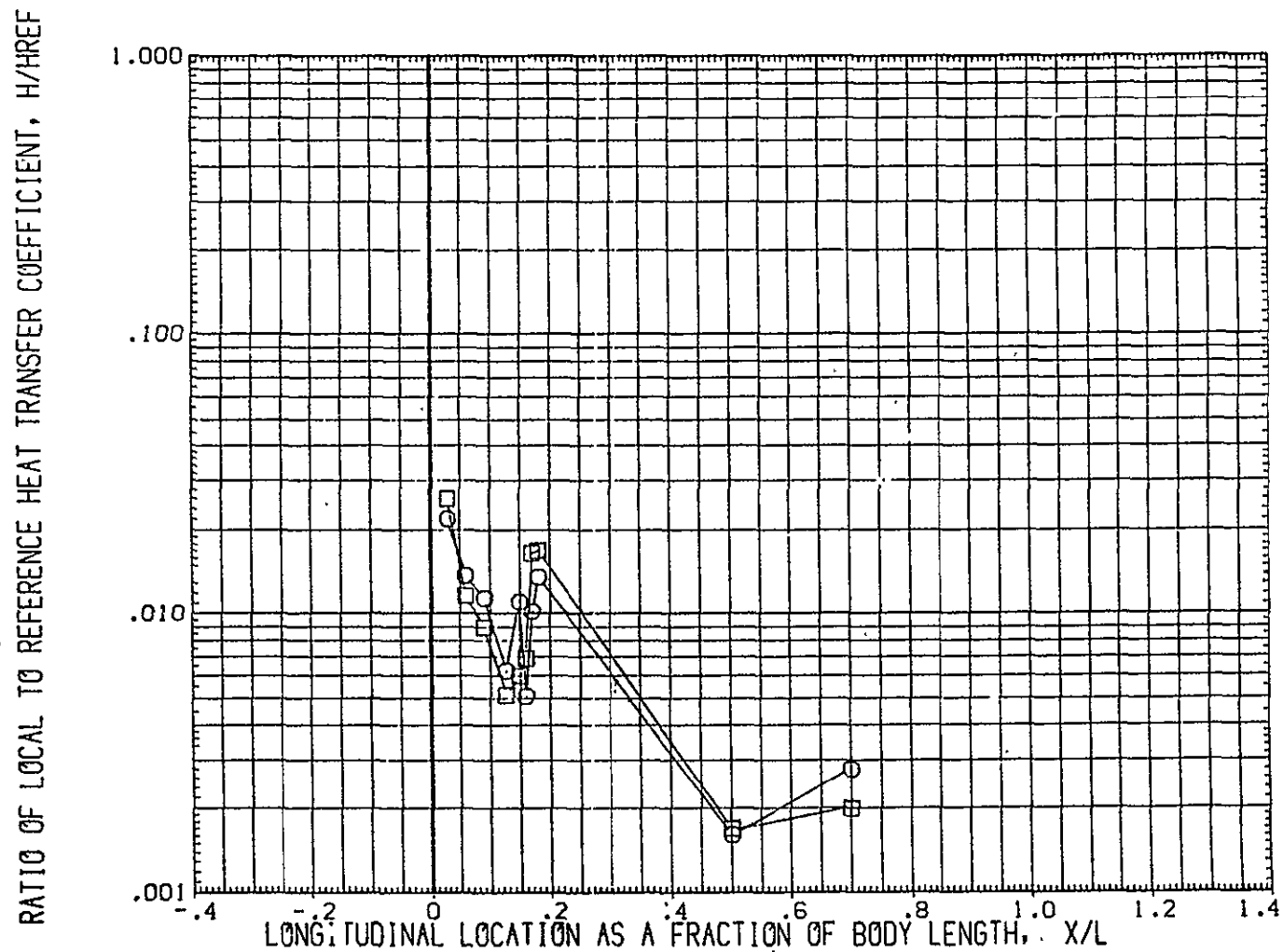


FIG.33 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER BODY HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= 1.000 PHI = 180.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW12)	CH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	.266	35.000	.000
(JUGW17)	CH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	.983	35.000	.000

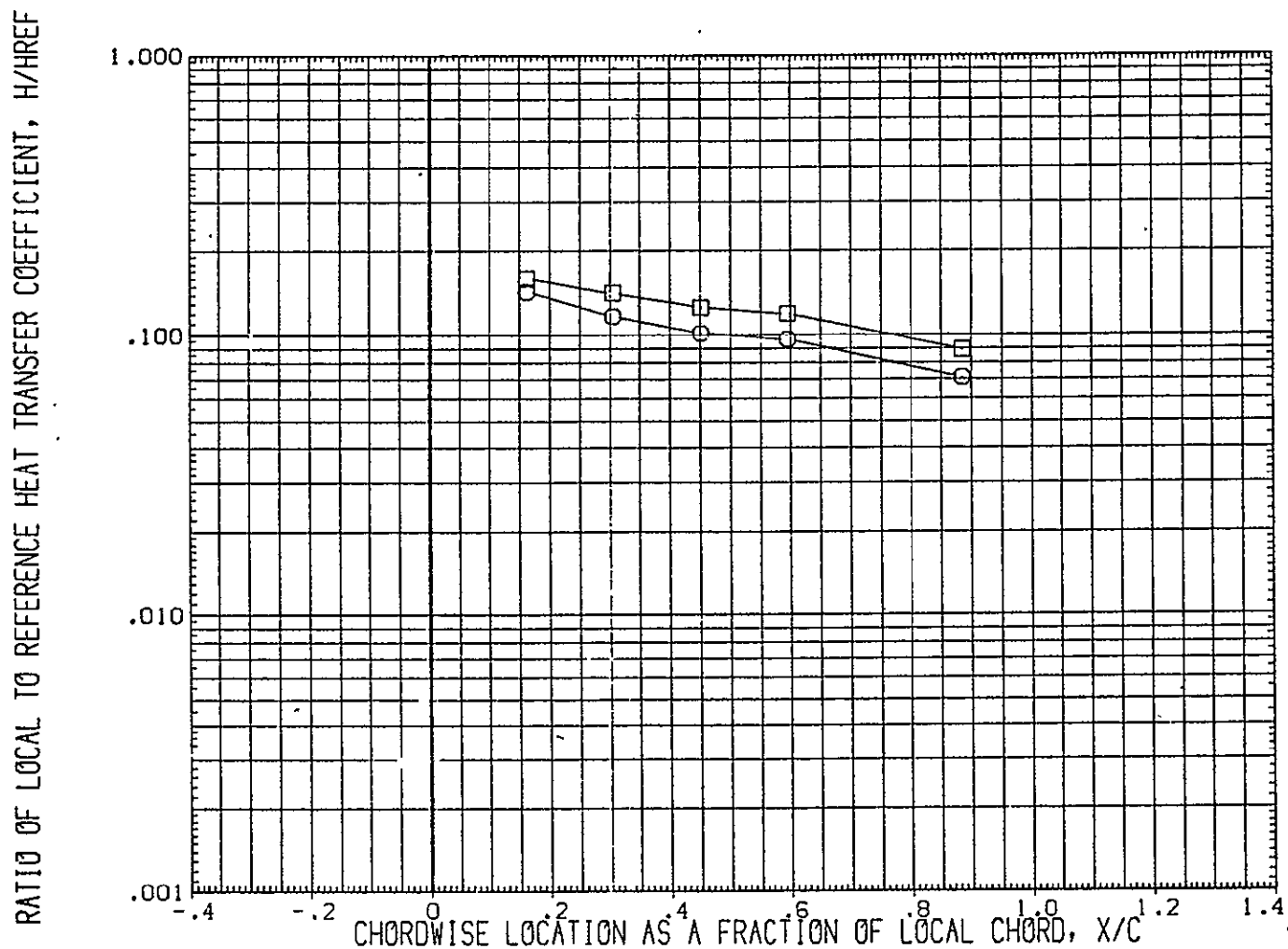


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= .850 2Y/B = .250

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	RV/L	ALPHA	BETA
(EUGV12)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.266	35.000	.000
(JUGV17)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.882	35.000	.000

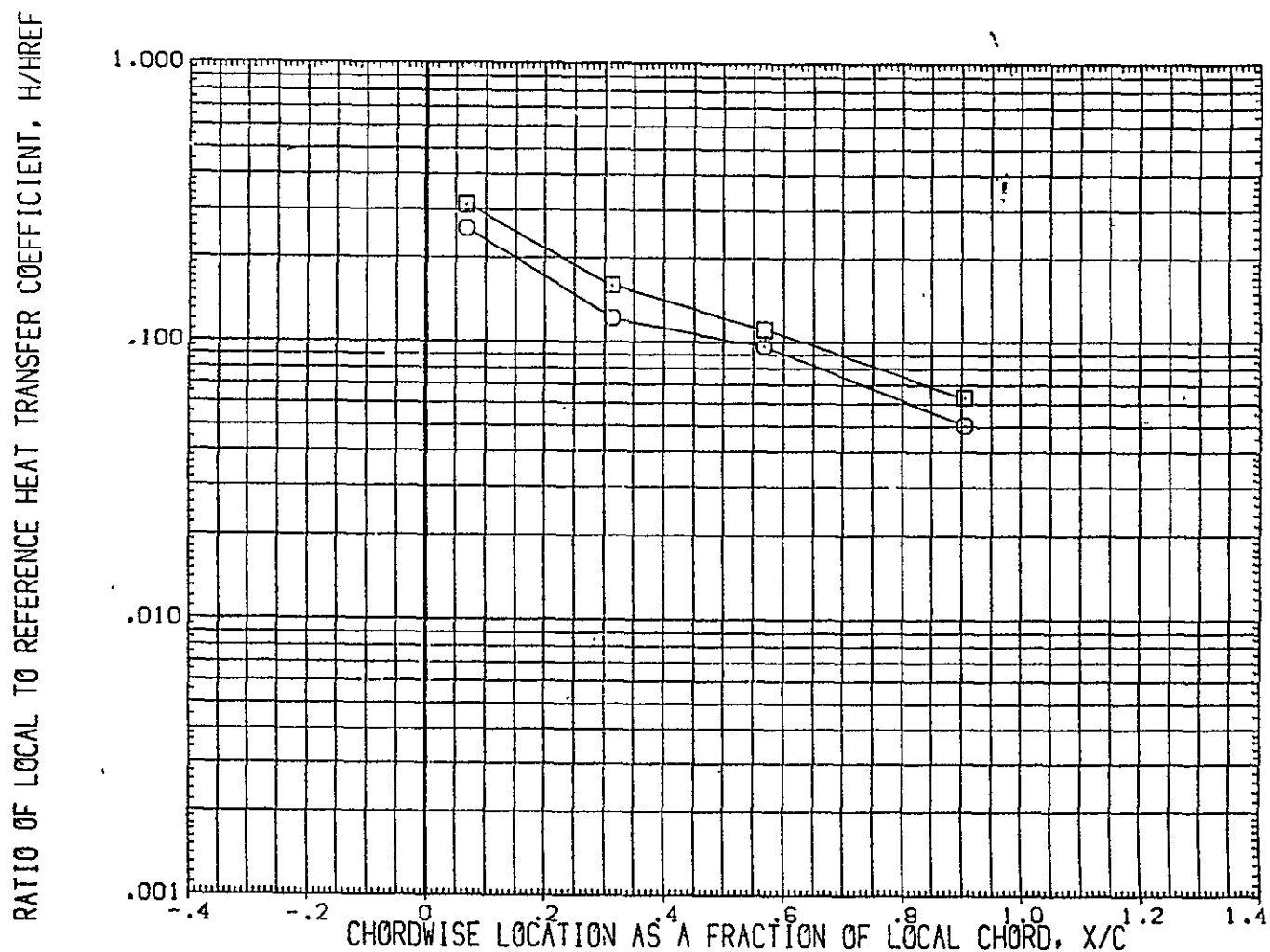


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= .850 2Y/B = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(EUGW12)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.266	35.000	.000
(JUGW17)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.983	35.000	.000

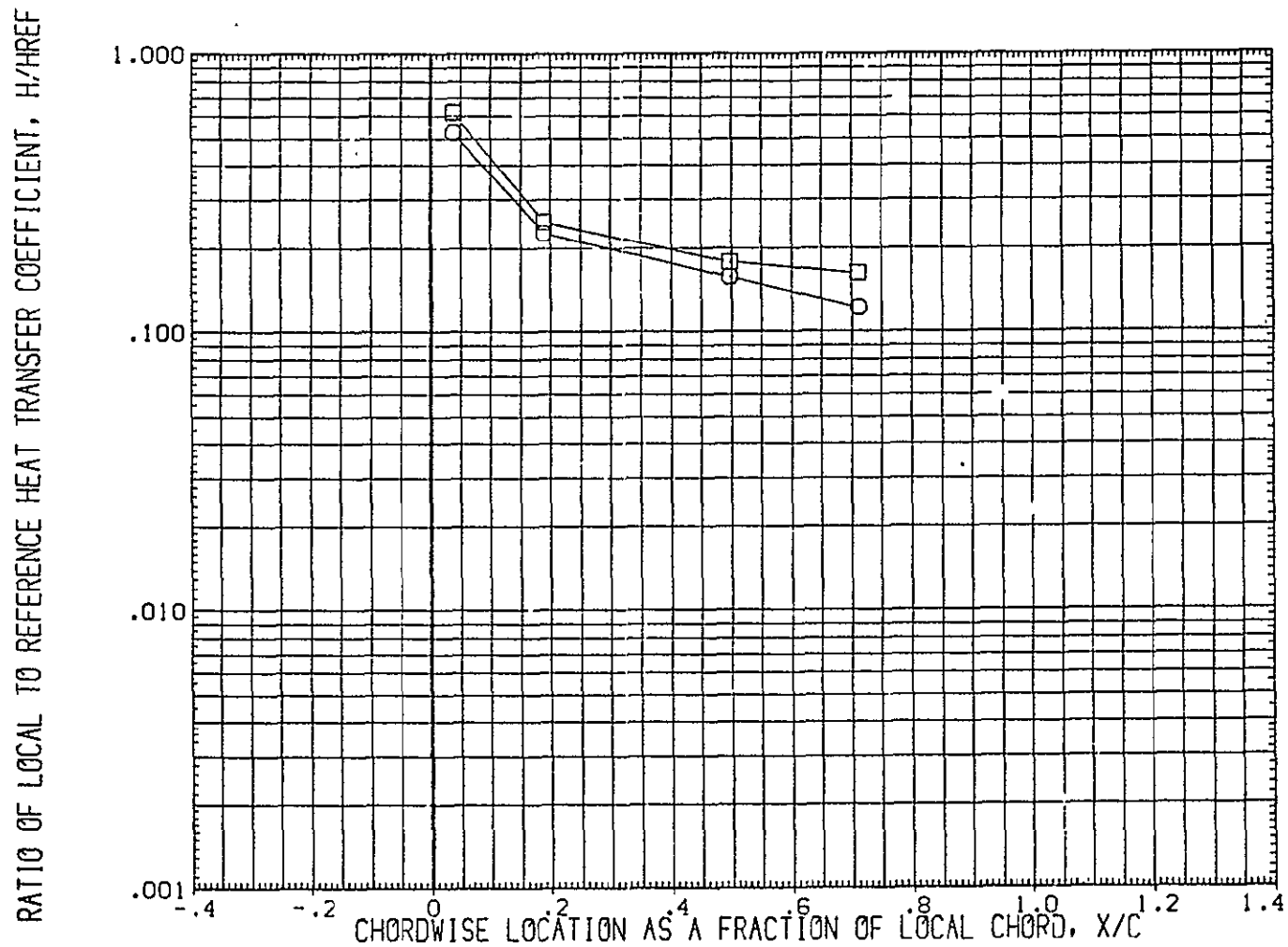


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT = .850 2Y/B = .500

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	REYNOLDS NO.	ALPHA	BETA
(EUGW12)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.266	35.000	.000
(JUGW17)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.983	35.000	.000

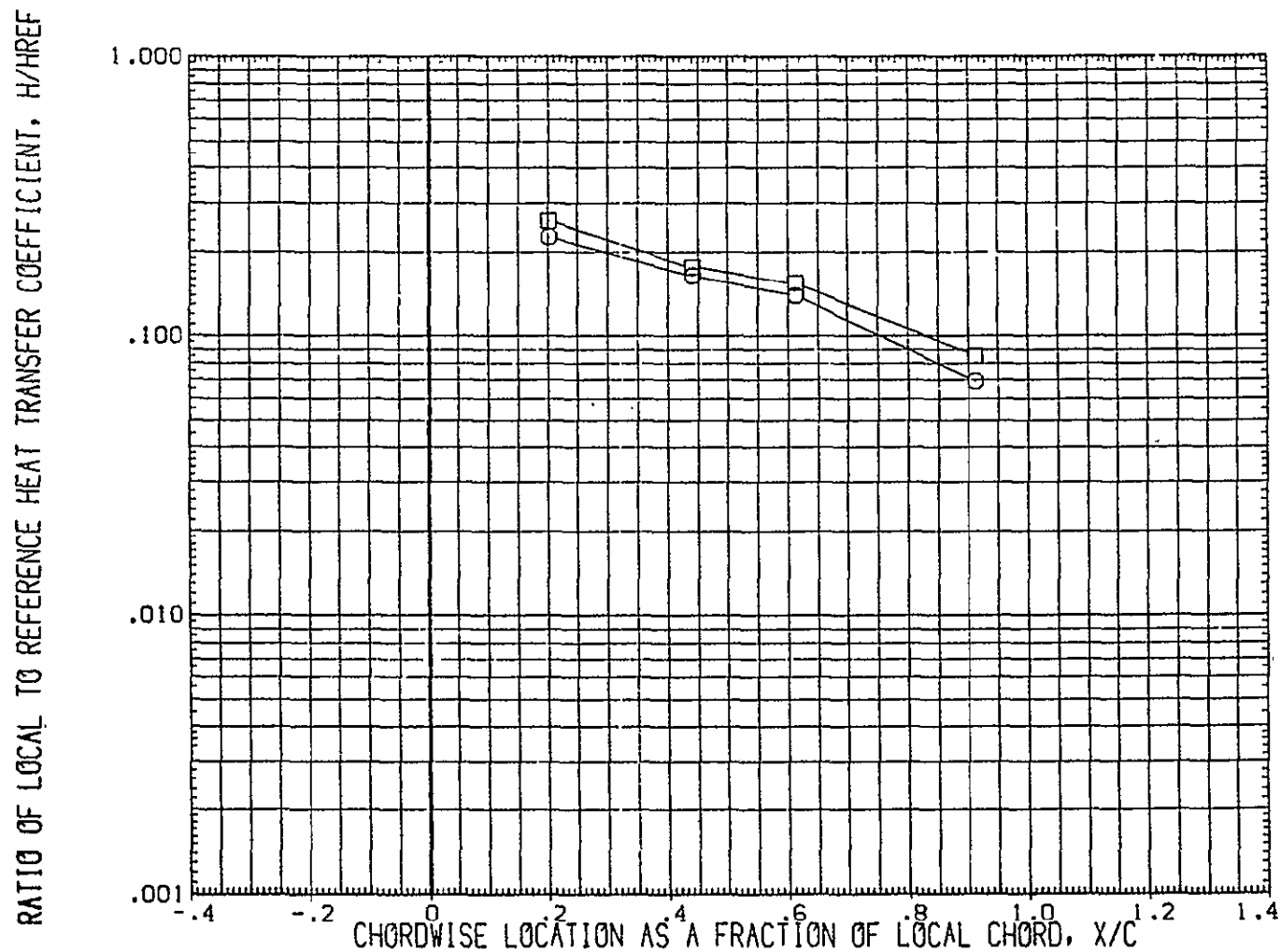


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= .850 2Y/B = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(EUGW12)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.266	35.000	.000
(JUGW17)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.983	35.000	.000

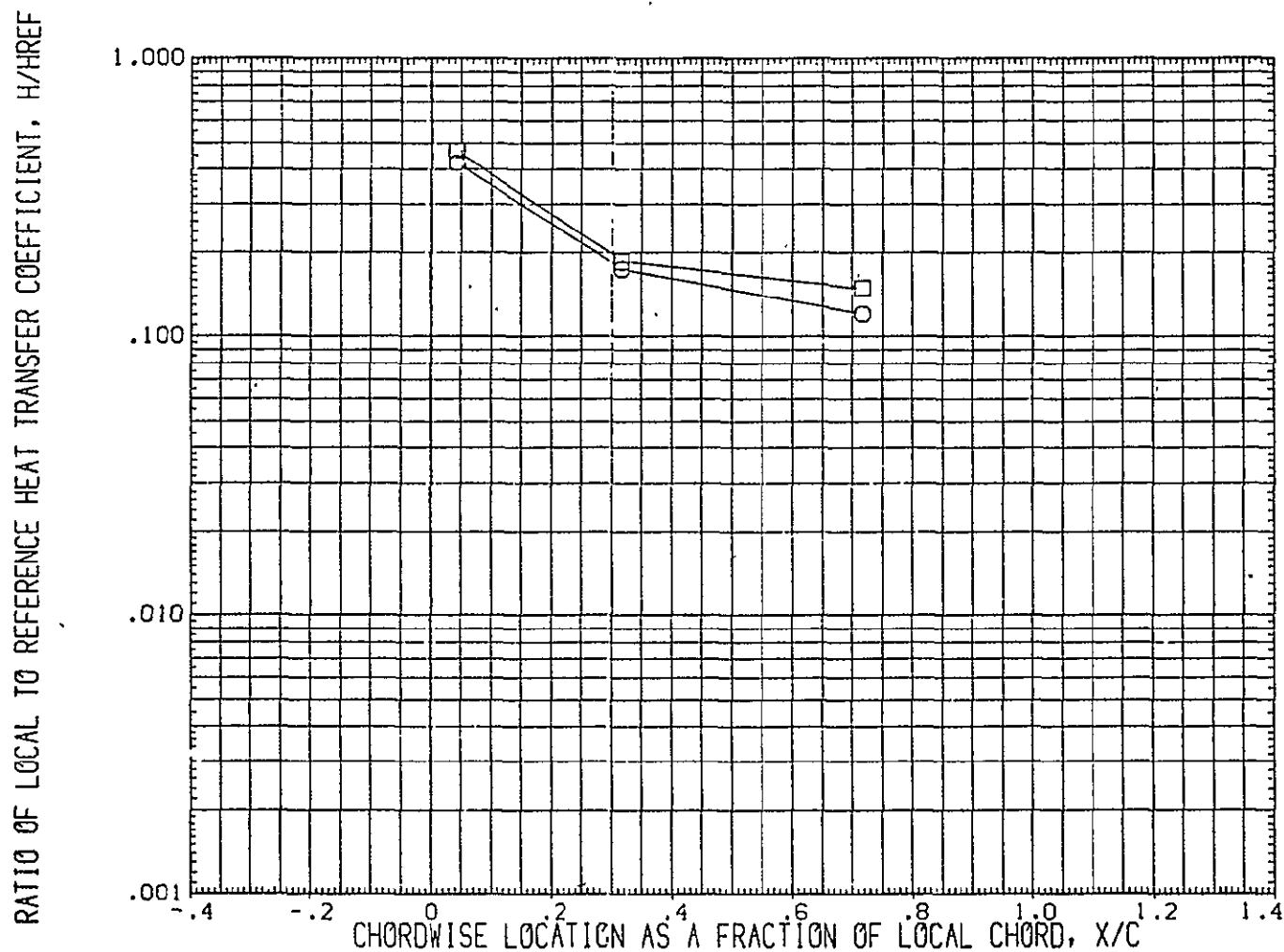


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT = .850 2Y/B = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW12)	OH12/1H2: (CAL HST 173-100) 37 0 WING C.S.	.266	35.000	.000
(JUGW17)	OH12/1H2: (CAL HST 173-100) 37 0 WING C.S.	.993	35.000	.000

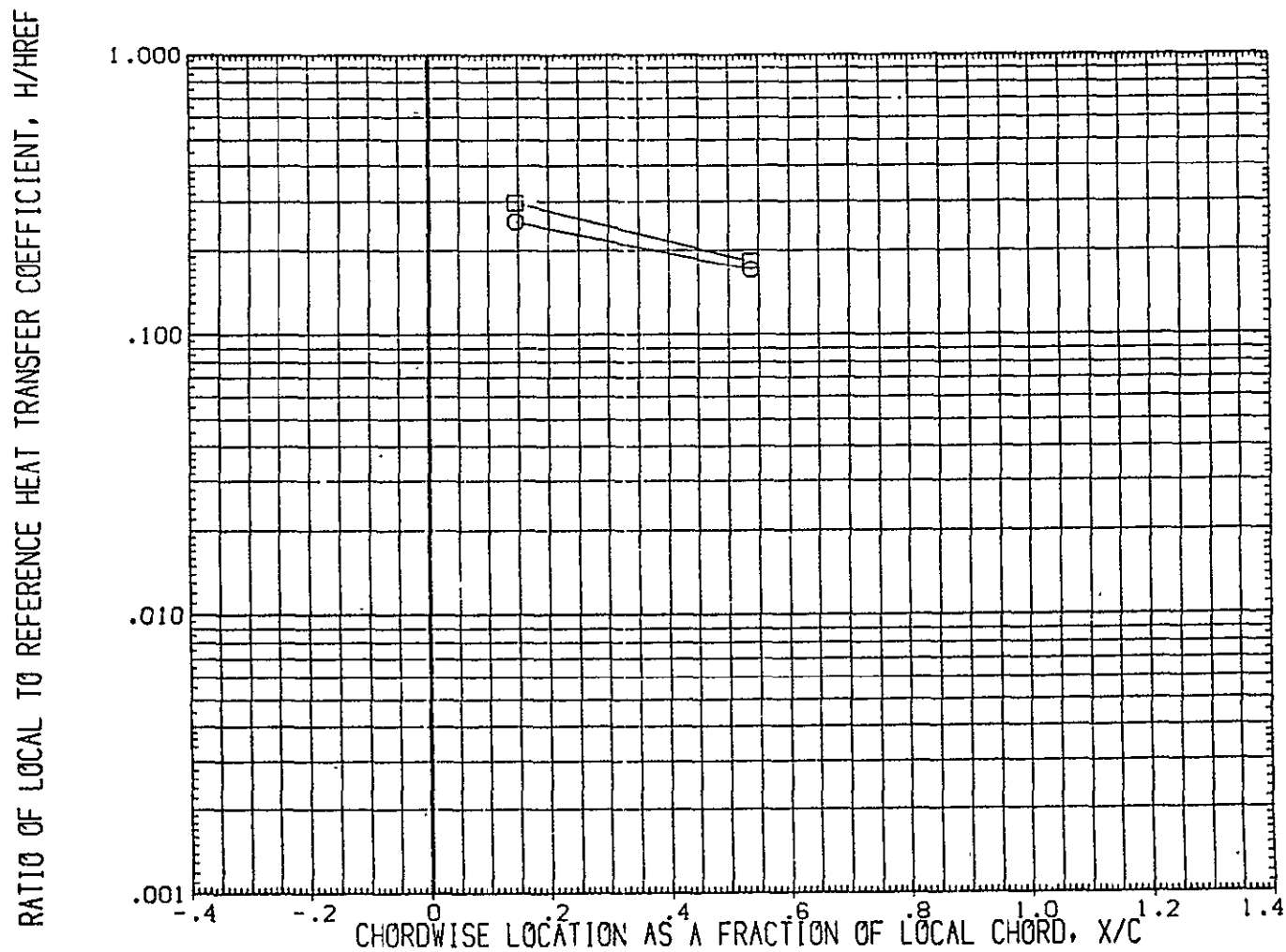


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT = .850 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUSW12)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.266	35.000	.000
(JUGW17)	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.983	35.000	.000

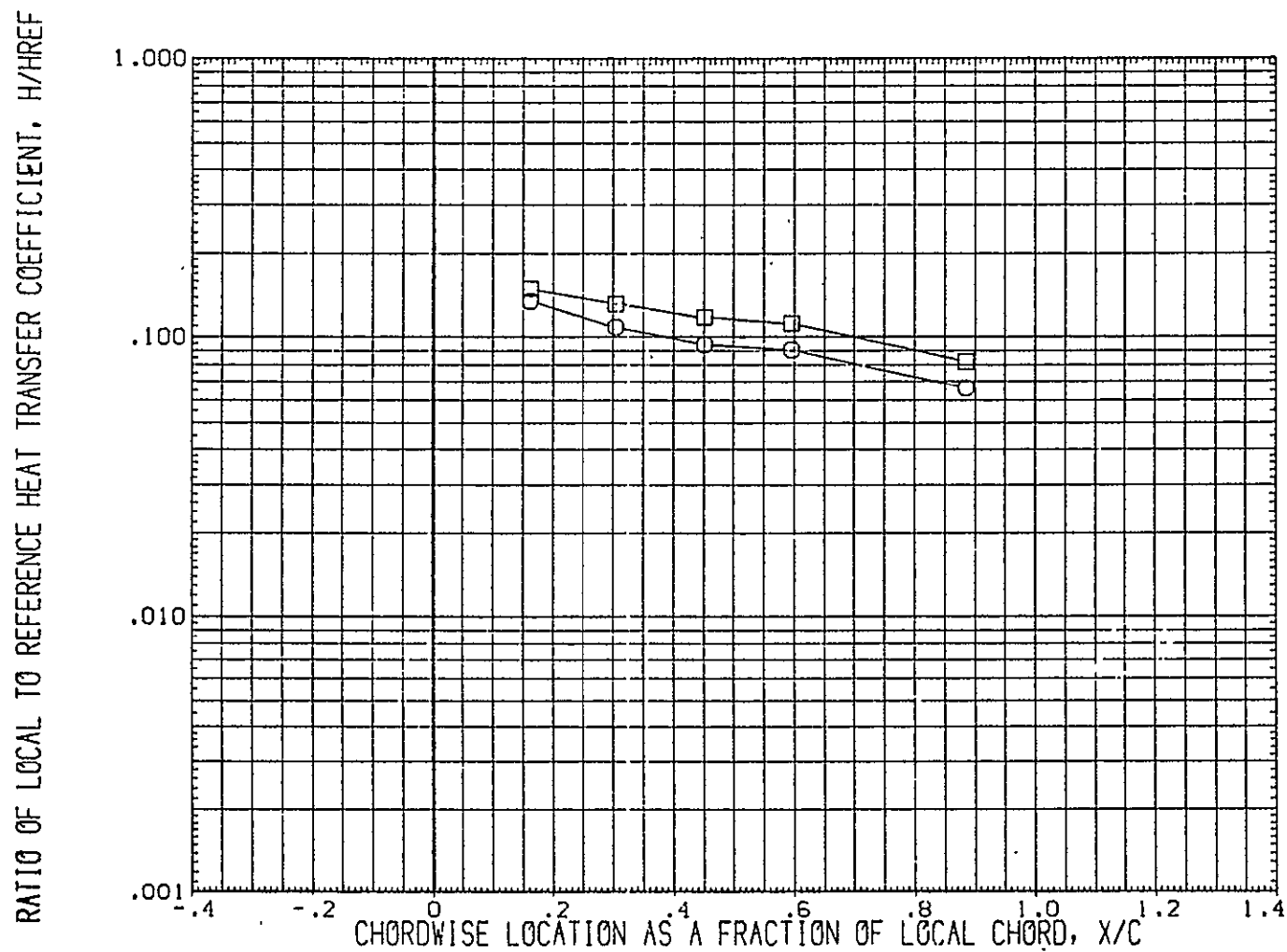


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER $\alpha=35$

MACH = 12.100 HAW/HT = .900 $2Y/B$ = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	RN/L	ALPHA	BETA
(EUGW12)	OH12/H21 (CAL HST 173-100)	37 0	WING L.S.	.266	35.000	.000
(JUGW17)	OH12/H21 (CAL HST 173-100)	37 0	WING L.S.	.983	35.000	.000

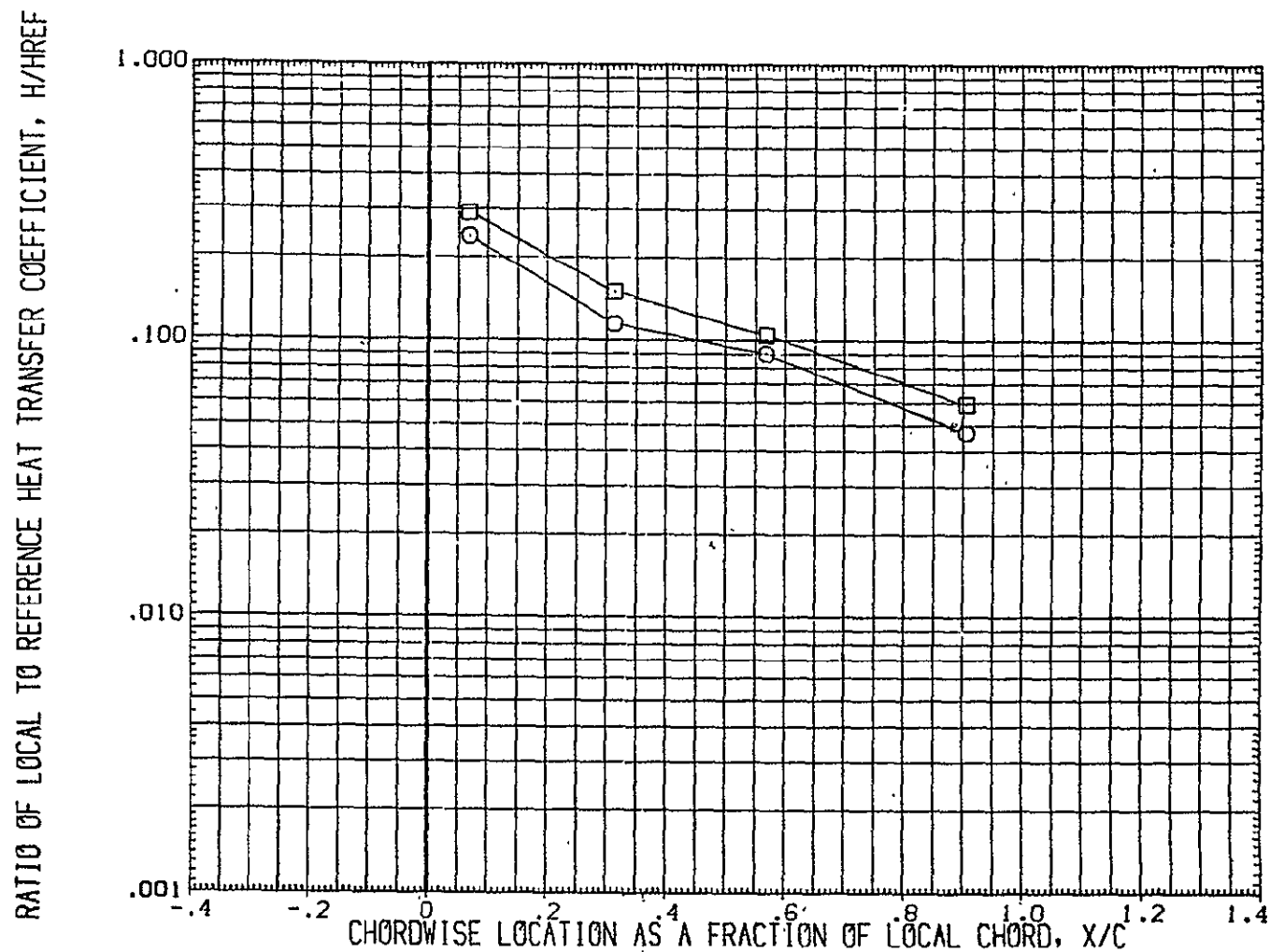


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= .900 2Y/B = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.266	35.000	.000
(JUGW17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.983	35.000	.000

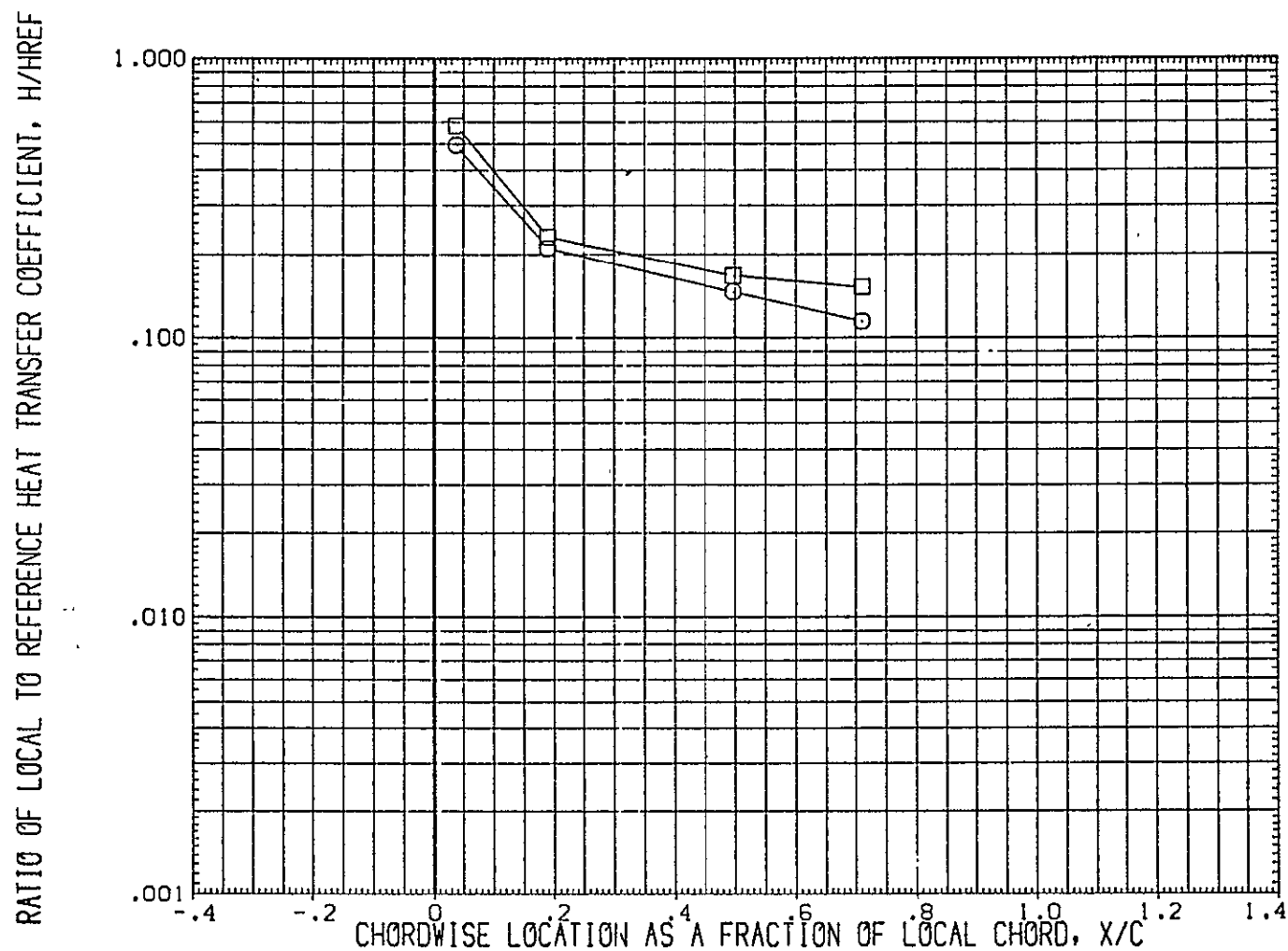


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= .900 2Y/B = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(EUGV12)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.266	35.000	.000
(JUGV17)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.983	35.000	.000

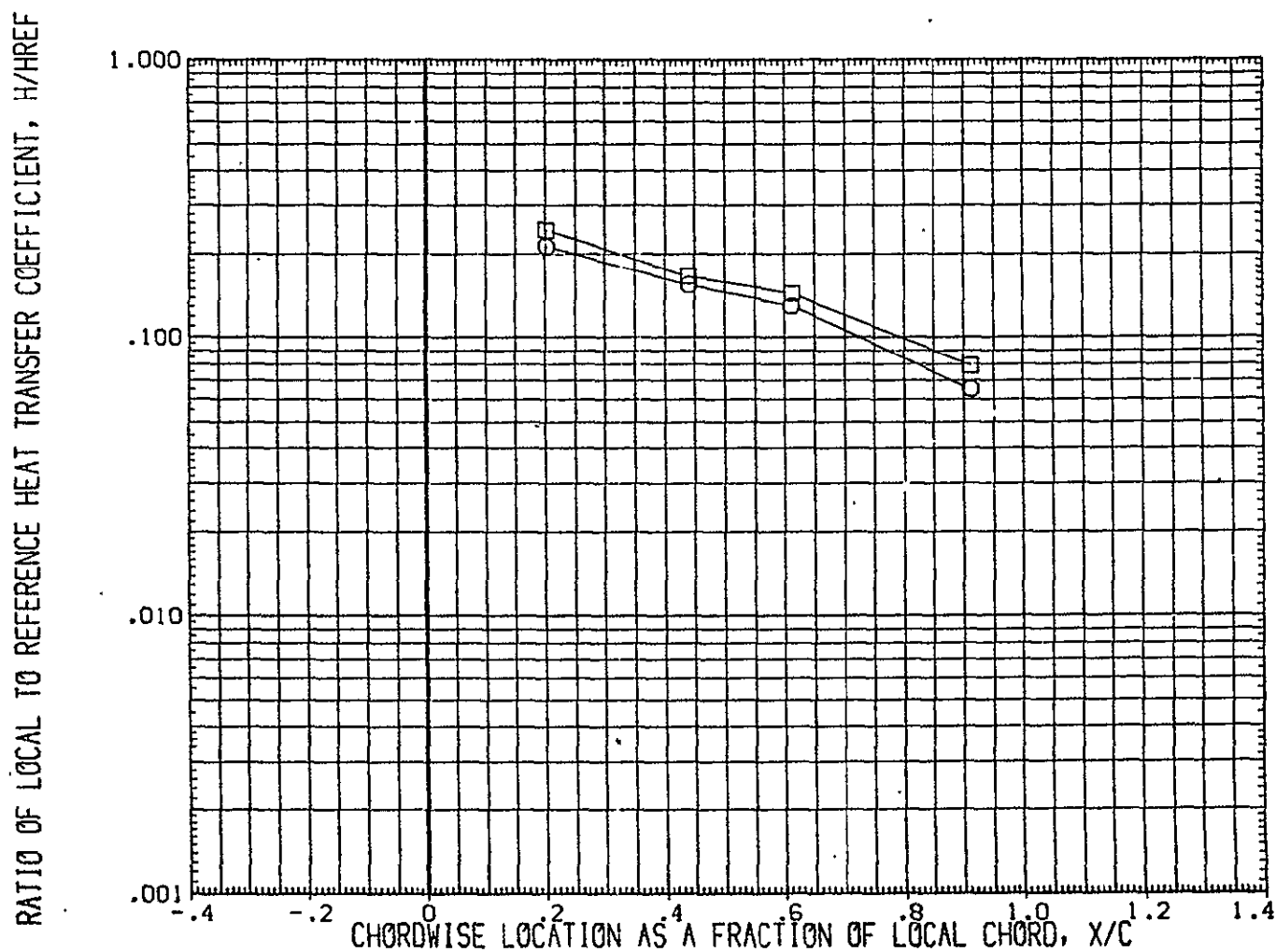


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= .900 2Y/B = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(EUGW12)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.266	35.000	.000
(JUGW17)	CH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.983	35.000	.000

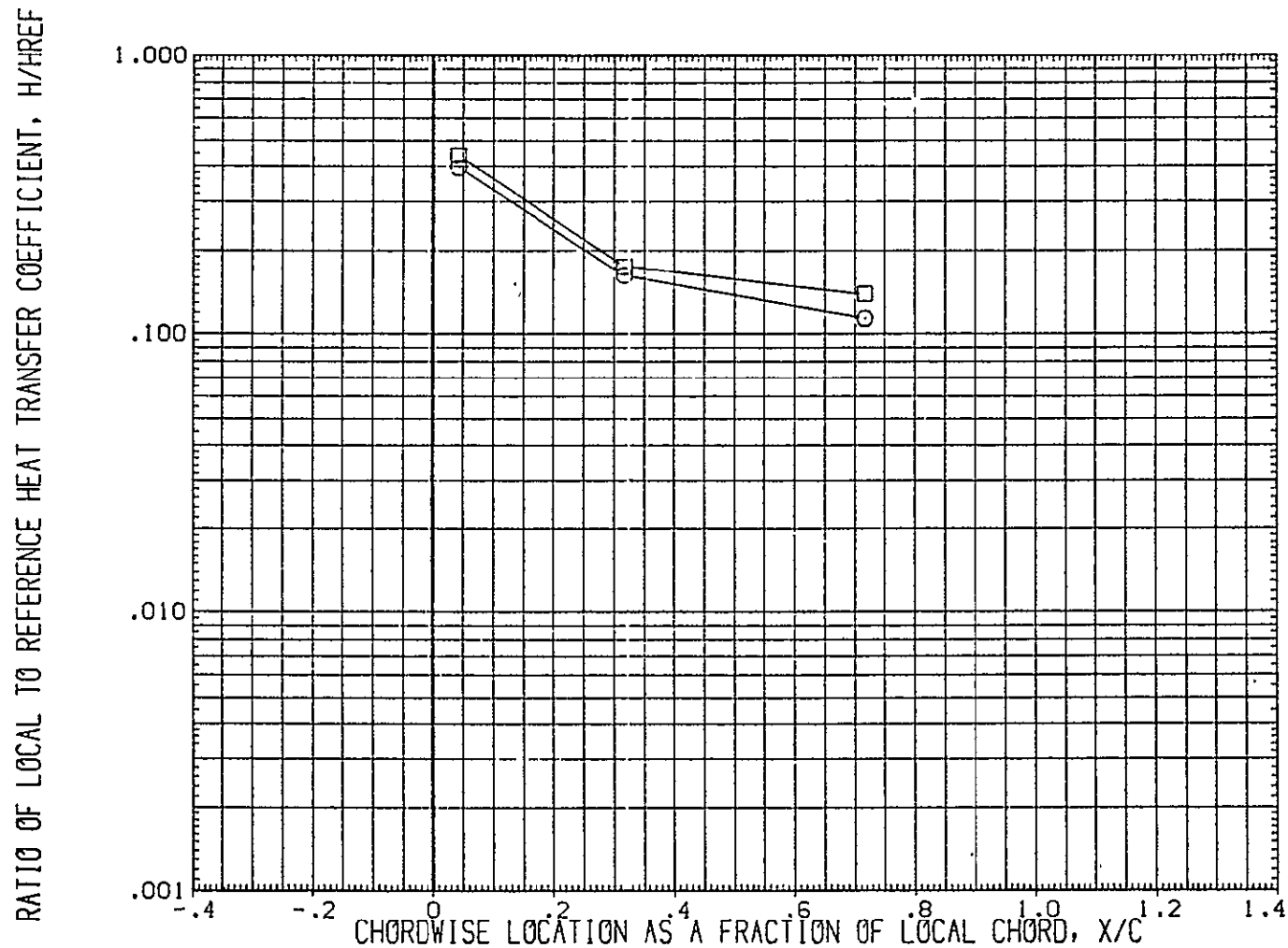


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= .900 2Y/B = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW12)	GM12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.266	35.000	.000
(JUGW17)	GM12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.983	35.000	.000

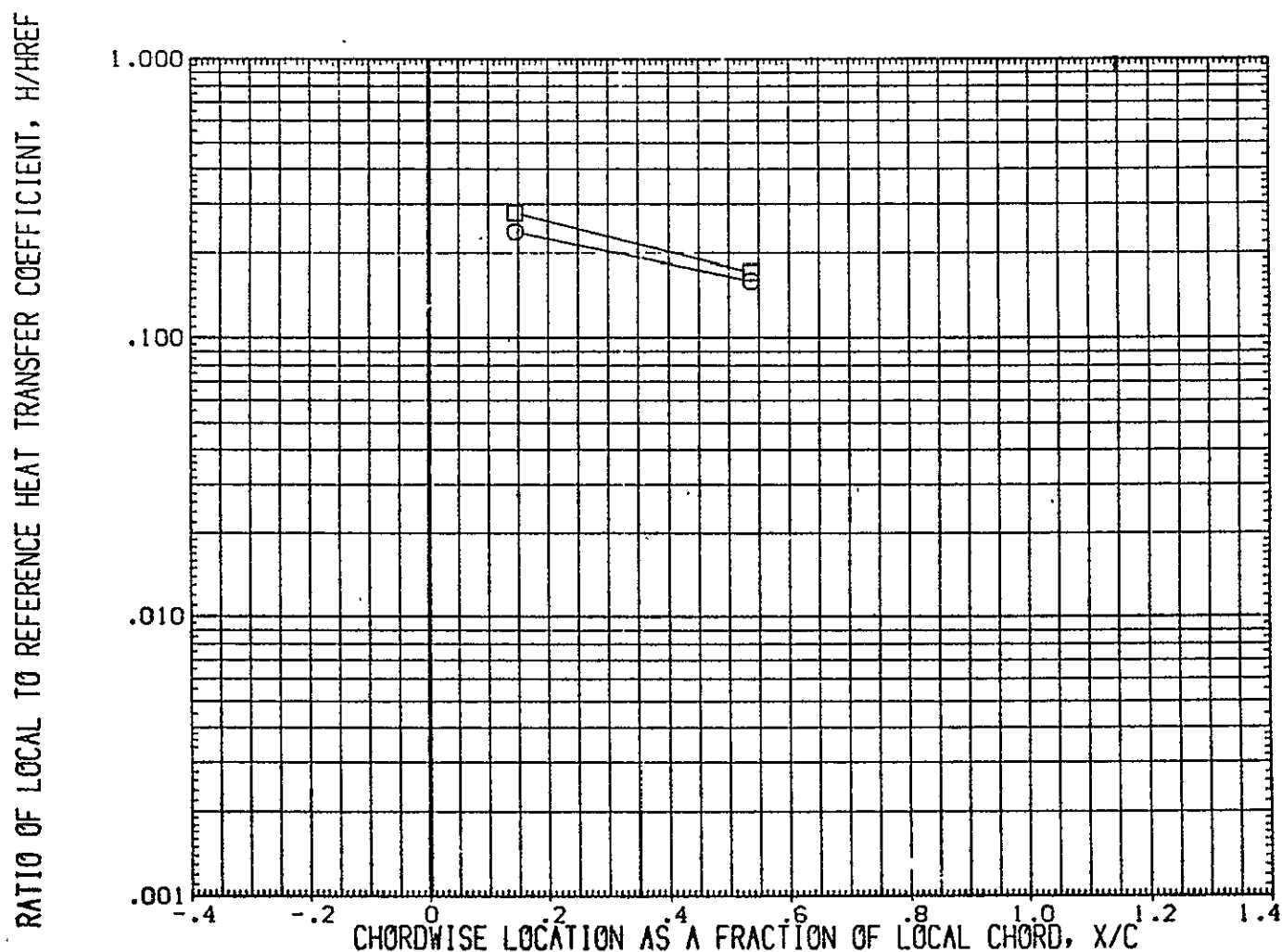


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= .900 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW12) \square	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.266	35.000	.000
(JUGW17) \circ	CH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.983	35.000	.000

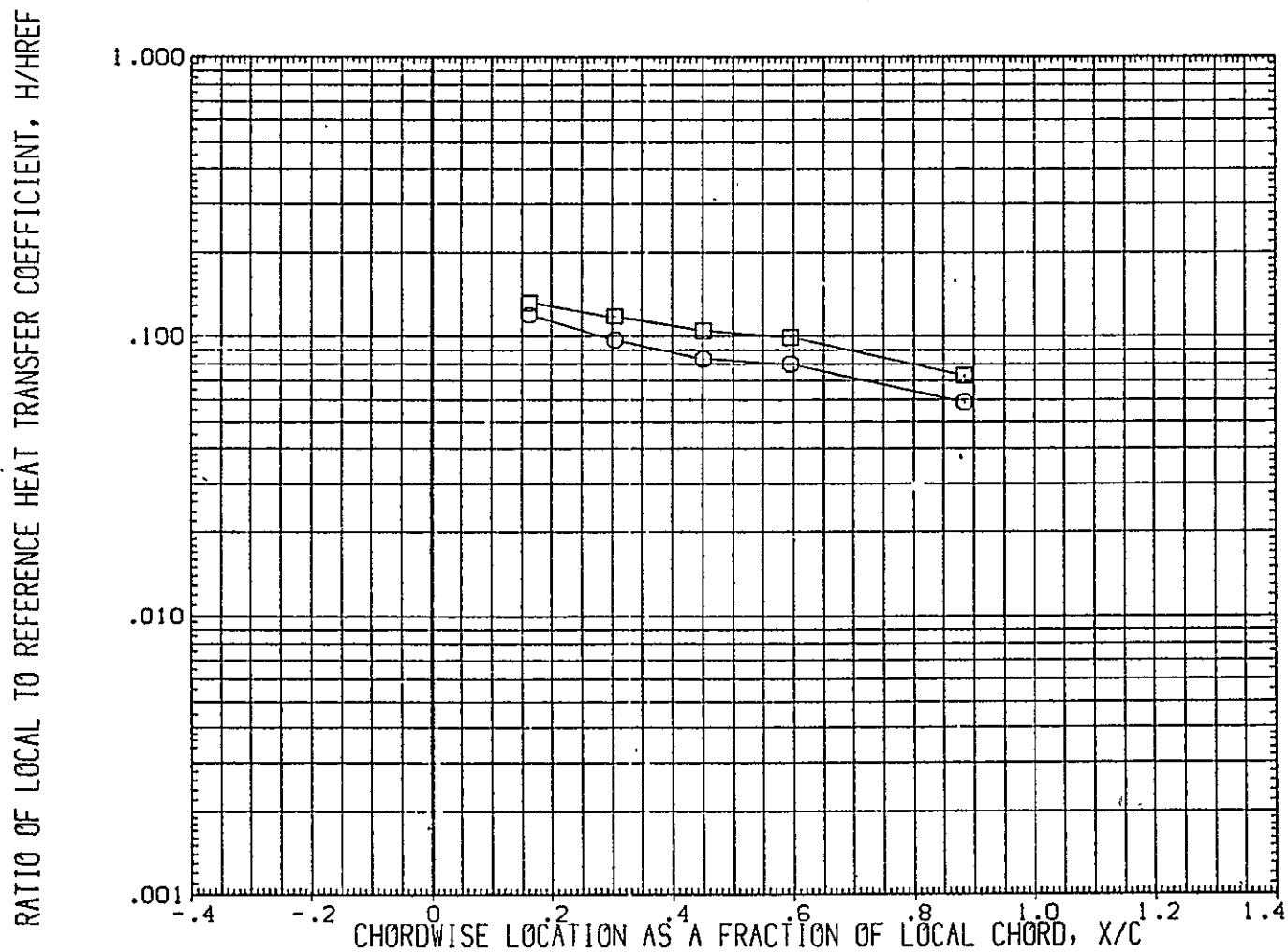


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= 1.000 2Y/B = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.266	35.000	.000
(JUGW17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.983	35.000	.000

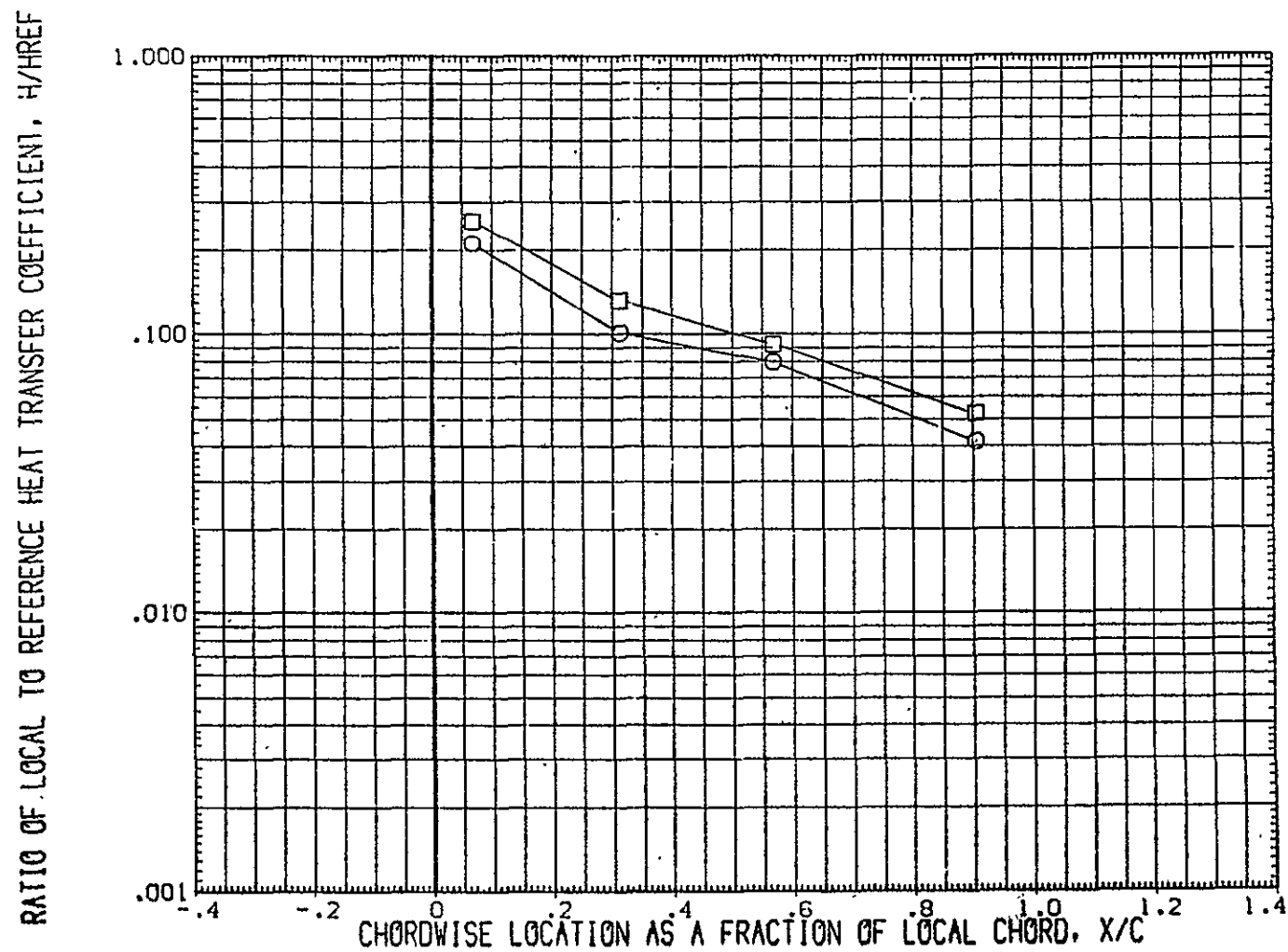


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= 1.000 2Y/B = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RV/L	ALPHA	BETA	
(EUGV12)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.266	35.000	.000
(JUGV17)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.983	35.000	.000

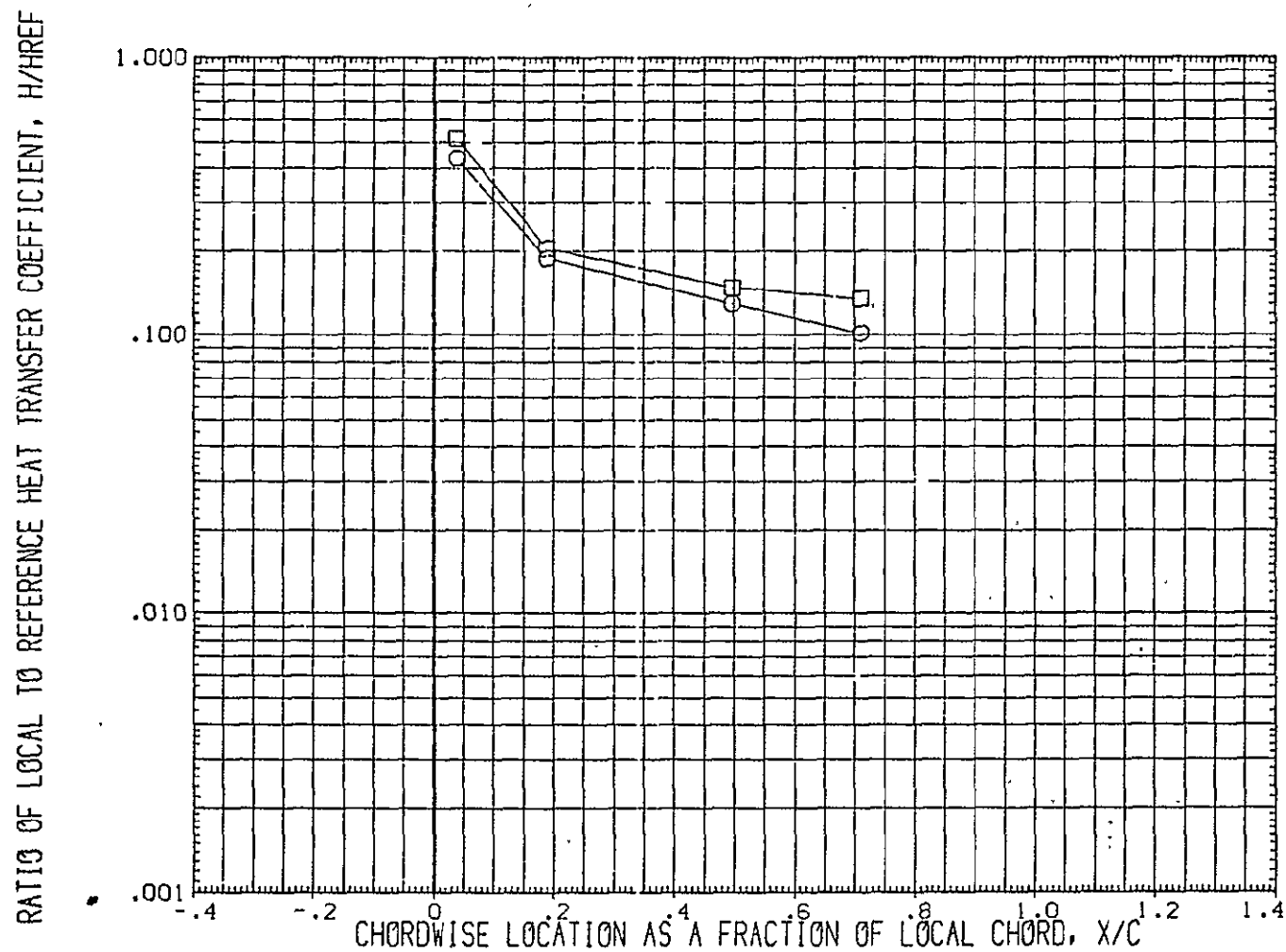


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= 1.000 2Y/B = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	RN/L	ALPHA	BETA
(EUGW12)	0412/1421 (CAL WST 173-100)	37 0	WING L.S.	.266	35.000	.000
(JUSV17)	0412/1421 (CAL WST 173-100)	37 0	WING L.S.	.983	35.000	.000

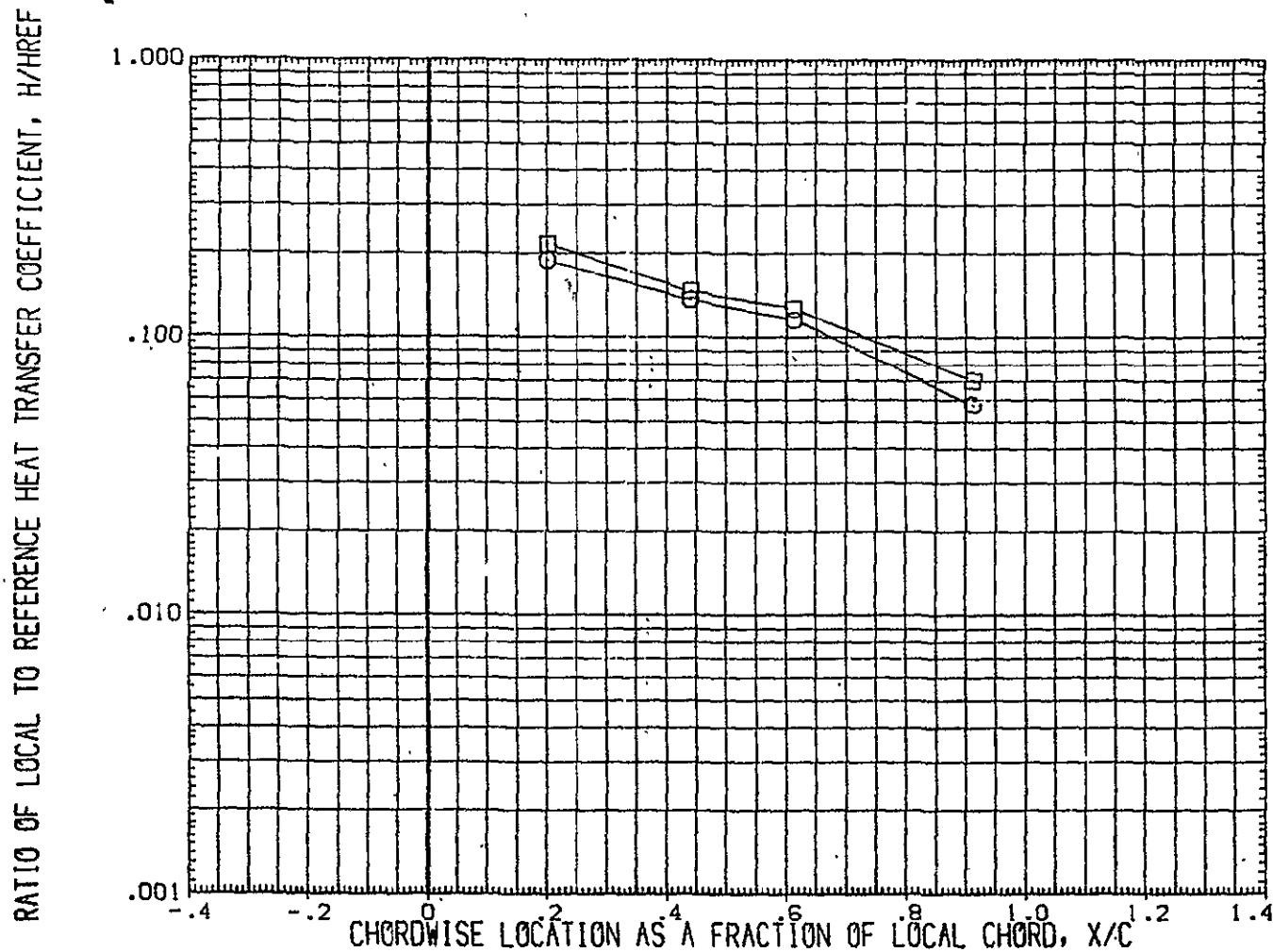


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= 1.000 2Y/B = .600

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW12)	CH12/H21 (CAL HST 173-100) 37 0 WING L.S.	.266	35.000	.000
(JUGW17)	CH12/H21 (CAL HST 173-100) 37 0 WING L.S.	.983	35.000	.000

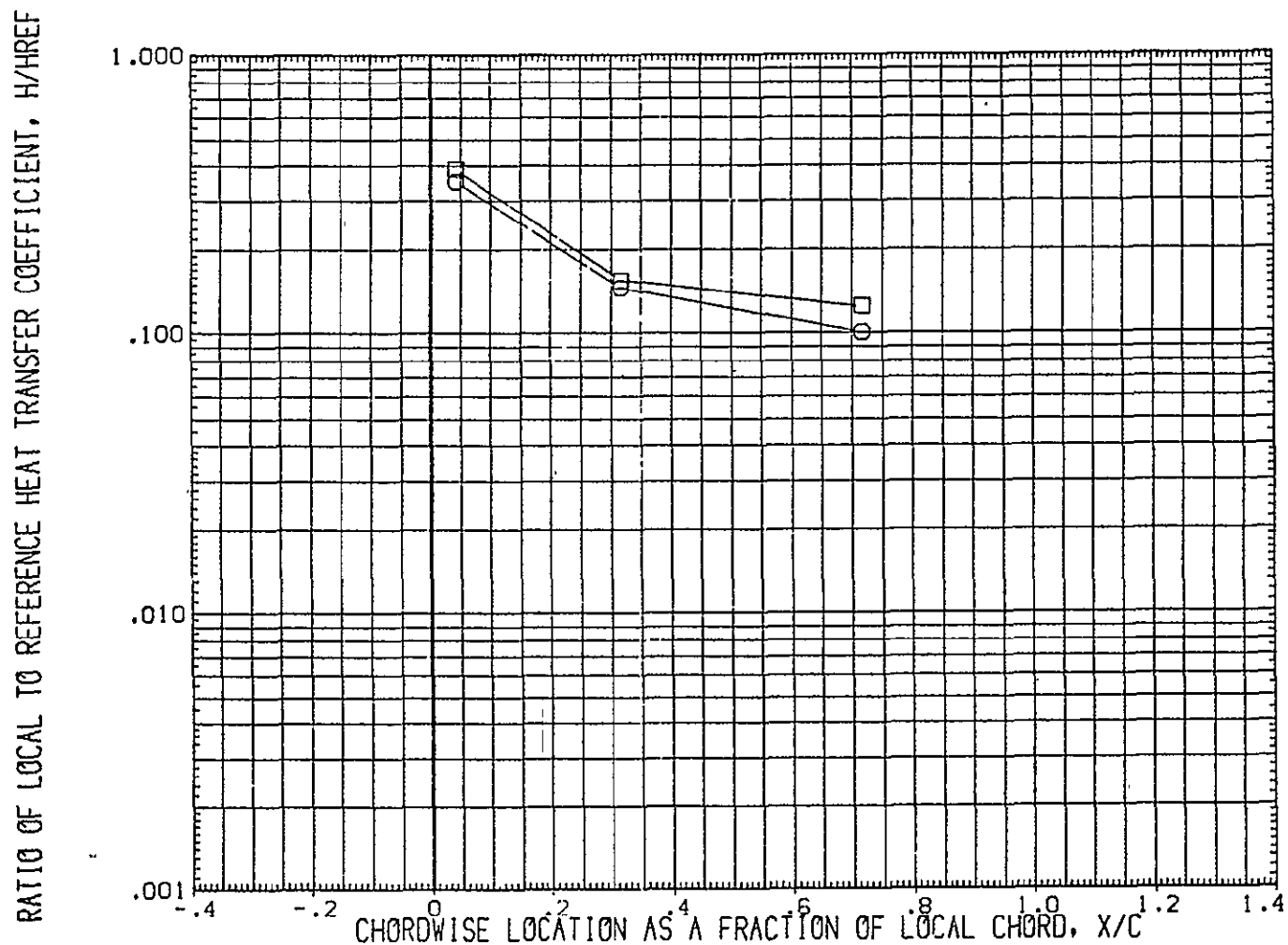


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= 1.000 2Y/B = .750

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGW12)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.266	35.090	.000
(JUGW17)	OH12/1H21 (CAL HST 173-100) 37 0 WING L.S.	.983	35.000	.000

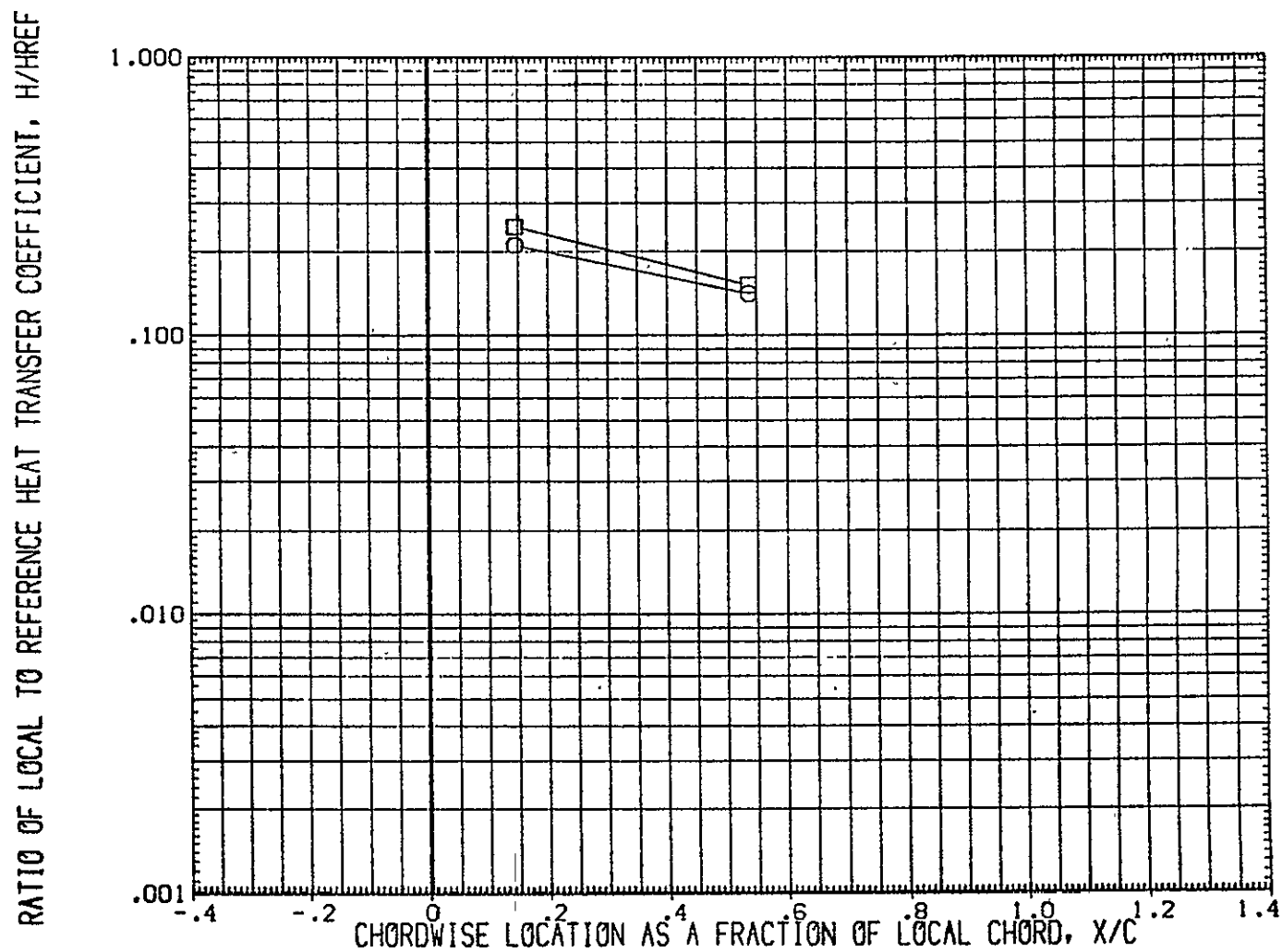


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= 1.000 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	RN/L	ALPHA	BETA
(FUGW12)	OH12/IH21 (CAL HST 173-100)	37 0	WING L.S.	.043	35.000	.000
(IUGW17)	OH12/IH21 (CAL HST 173-100)	37 0	WING L.S.	.254	35.000	.000

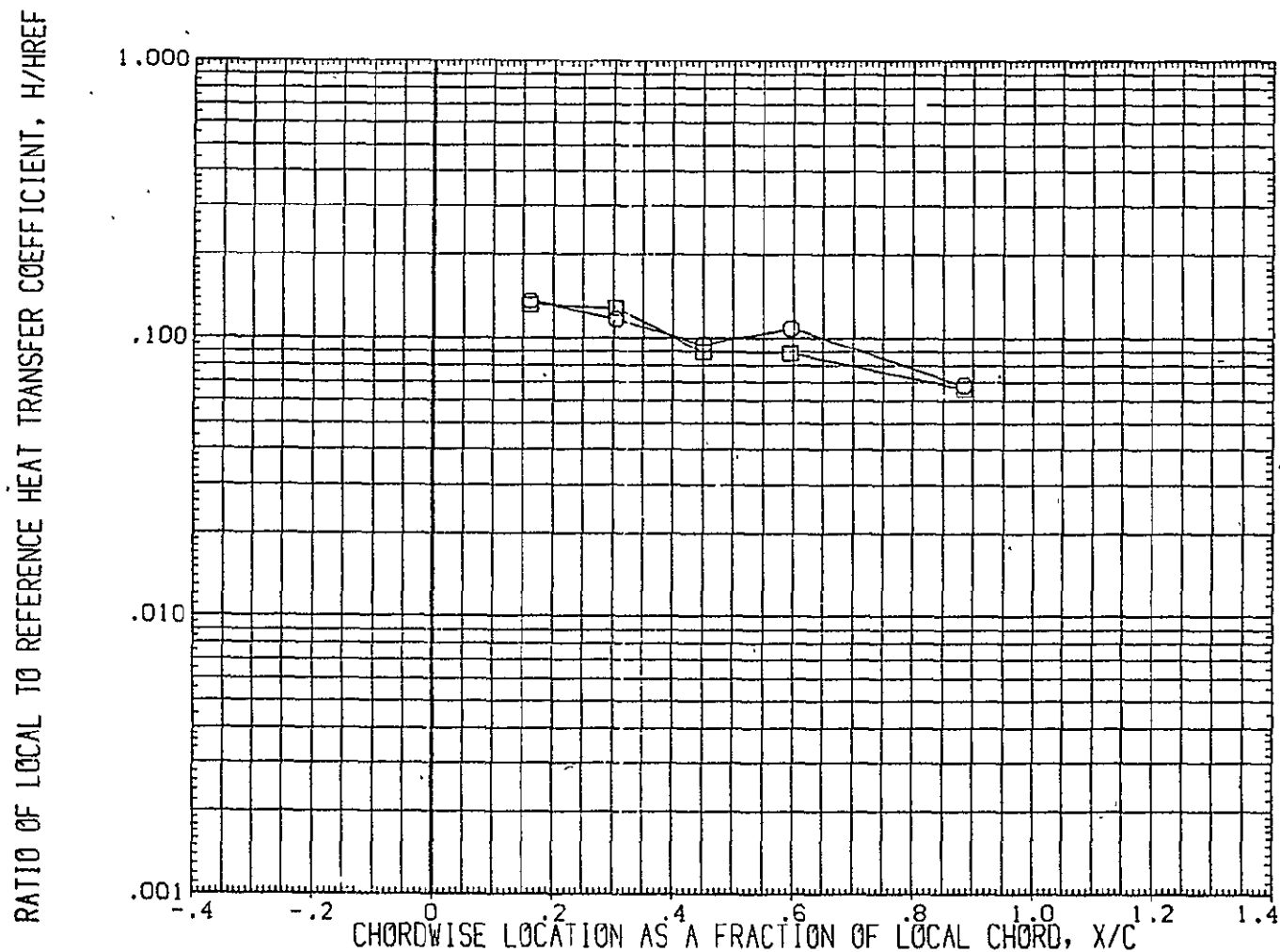


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= .850 2Y/B = .250

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	RN/L	ALPHA	BETA
(FUGW12)	CH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.043	35.000	.000
(FUGW17)	CH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.254	35.000	.000

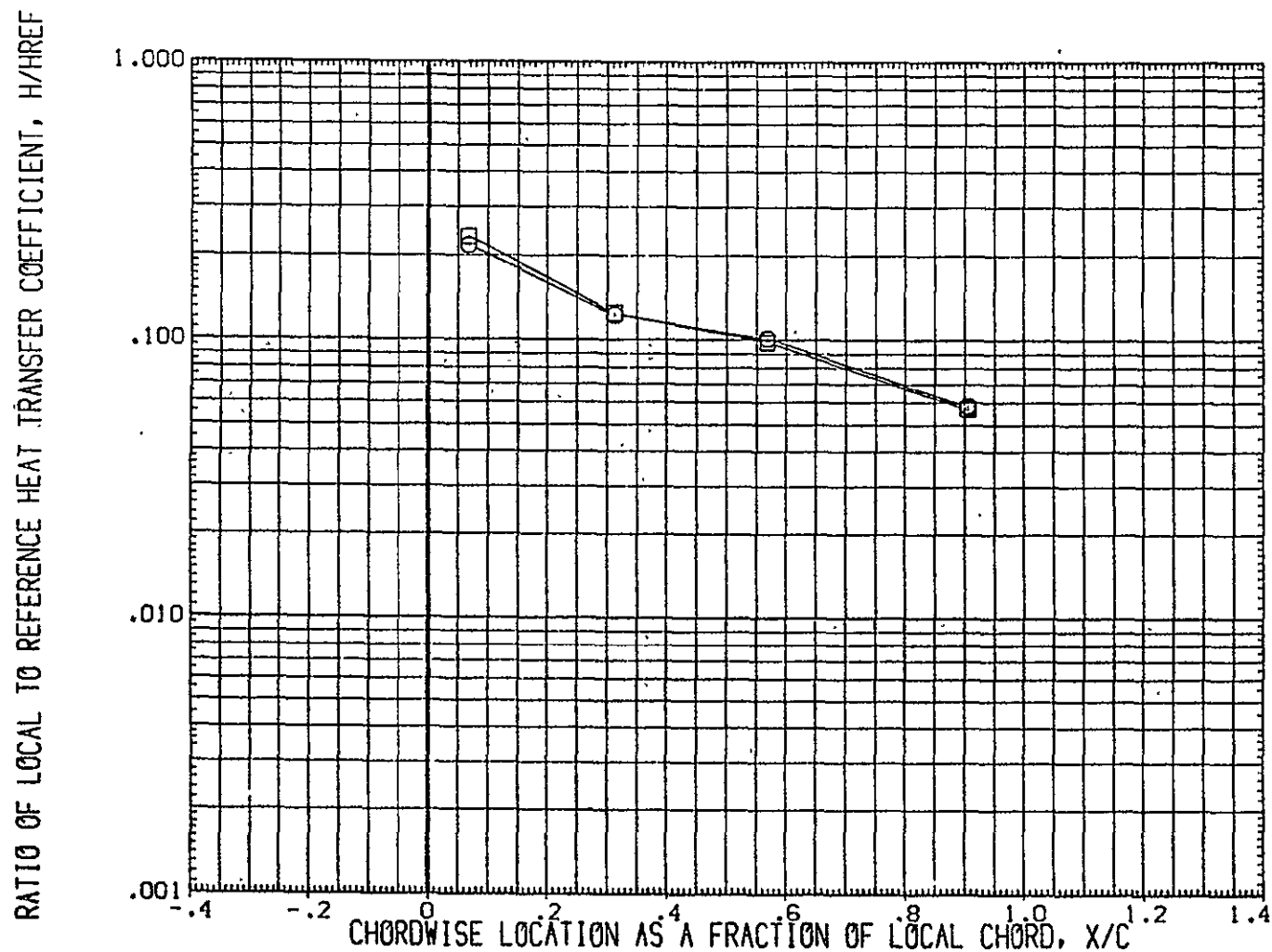


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= .850 2Y/B = .400

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGW12)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.043	35.000	.000
(1UGW17)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.254	35.000	.000

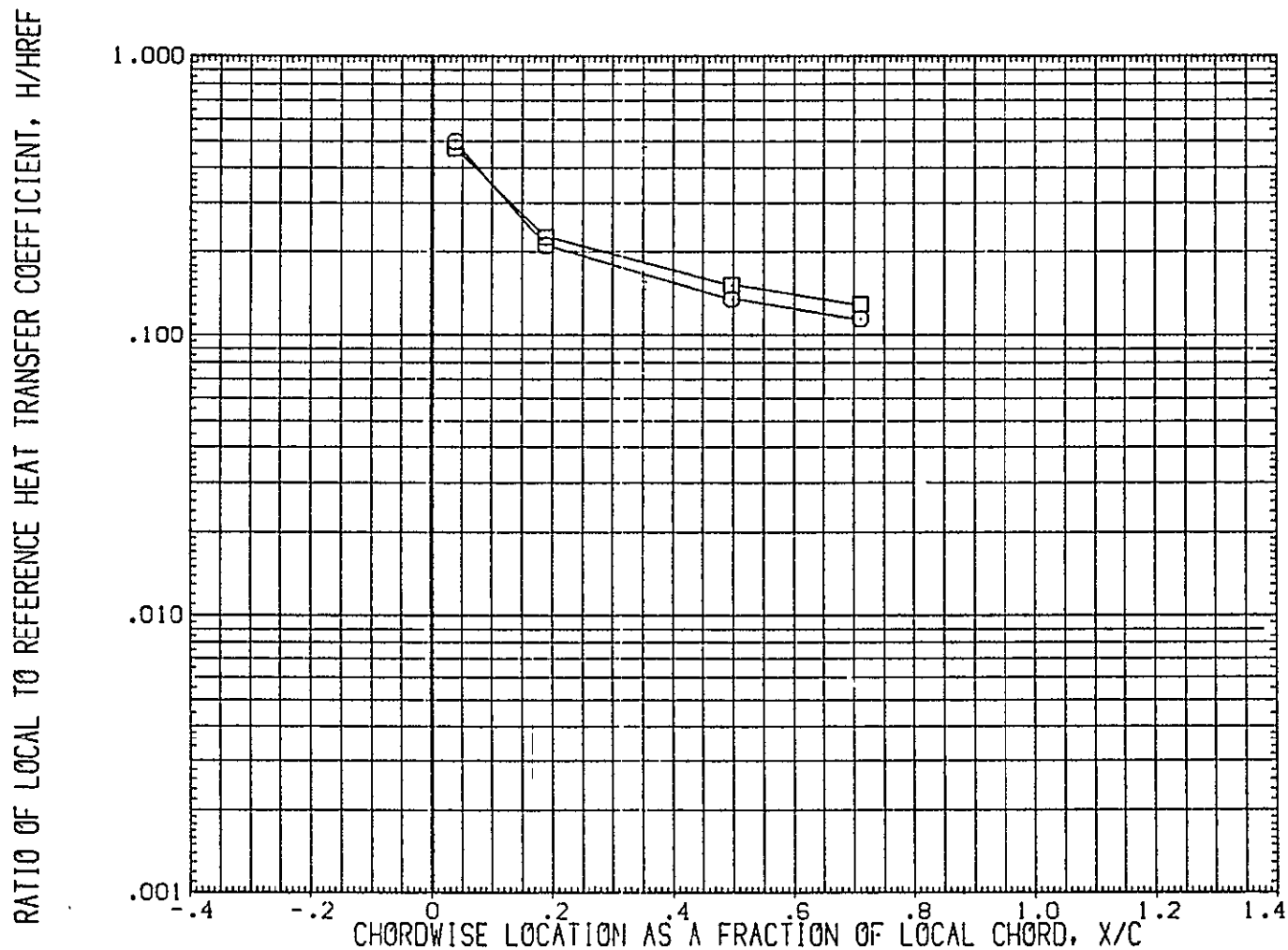


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT = .850 2Y/B = .500

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGW12)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.043	35.000	.000
(1UGW17)	OH12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.254	35.000	.000

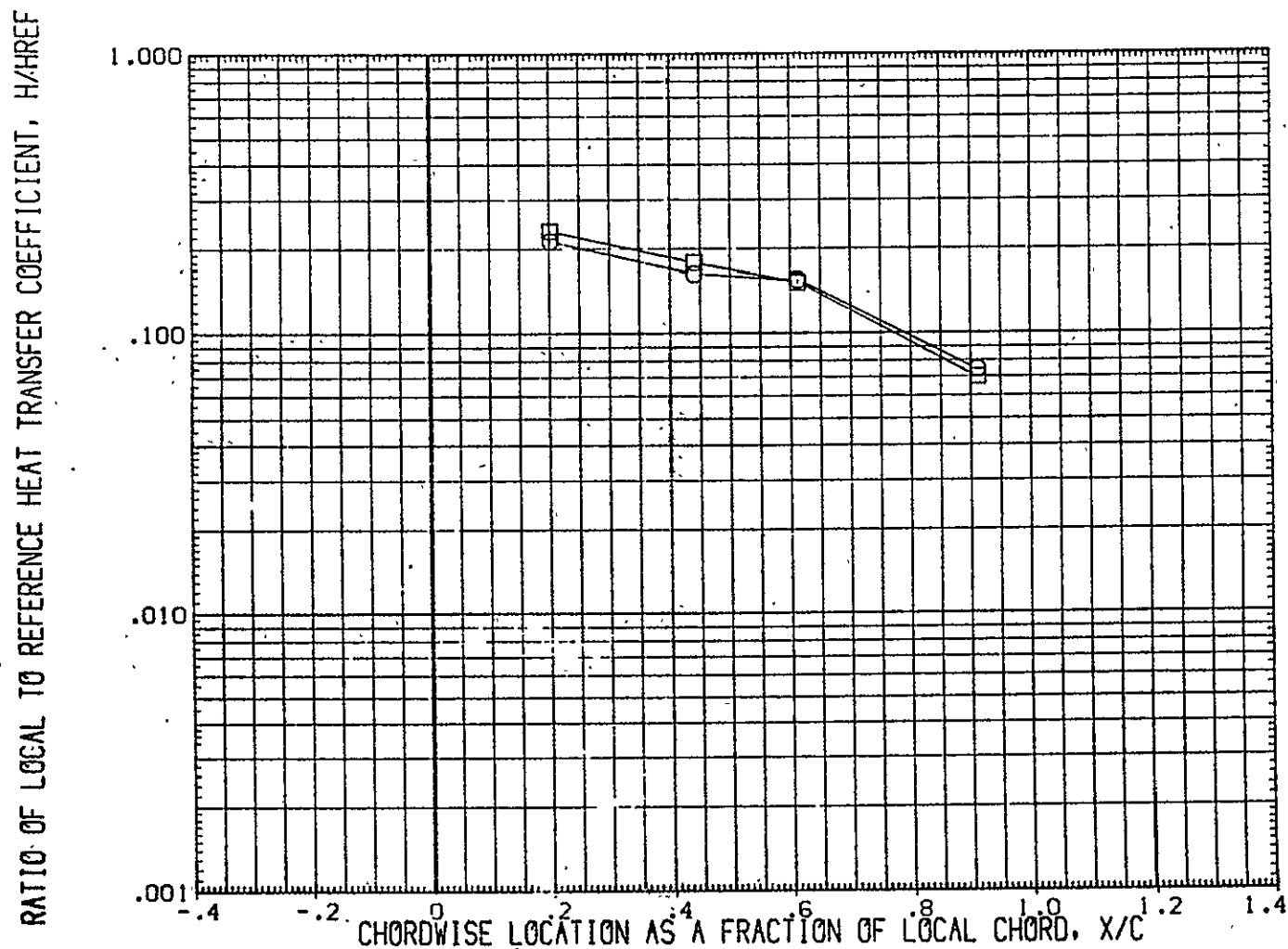


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35
MACH = 15.880 HAW/HT= .850 2Y/B = .600 PAGE 994

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGW12)	OH12/1H21 (CAL HST 173-100) 37 0	WING L S.	.043	35.000	.000
(FUGW17)	OH12/1H21 (CAL HST 173-100) 37 0	WING L S.	.254	35.000	.000

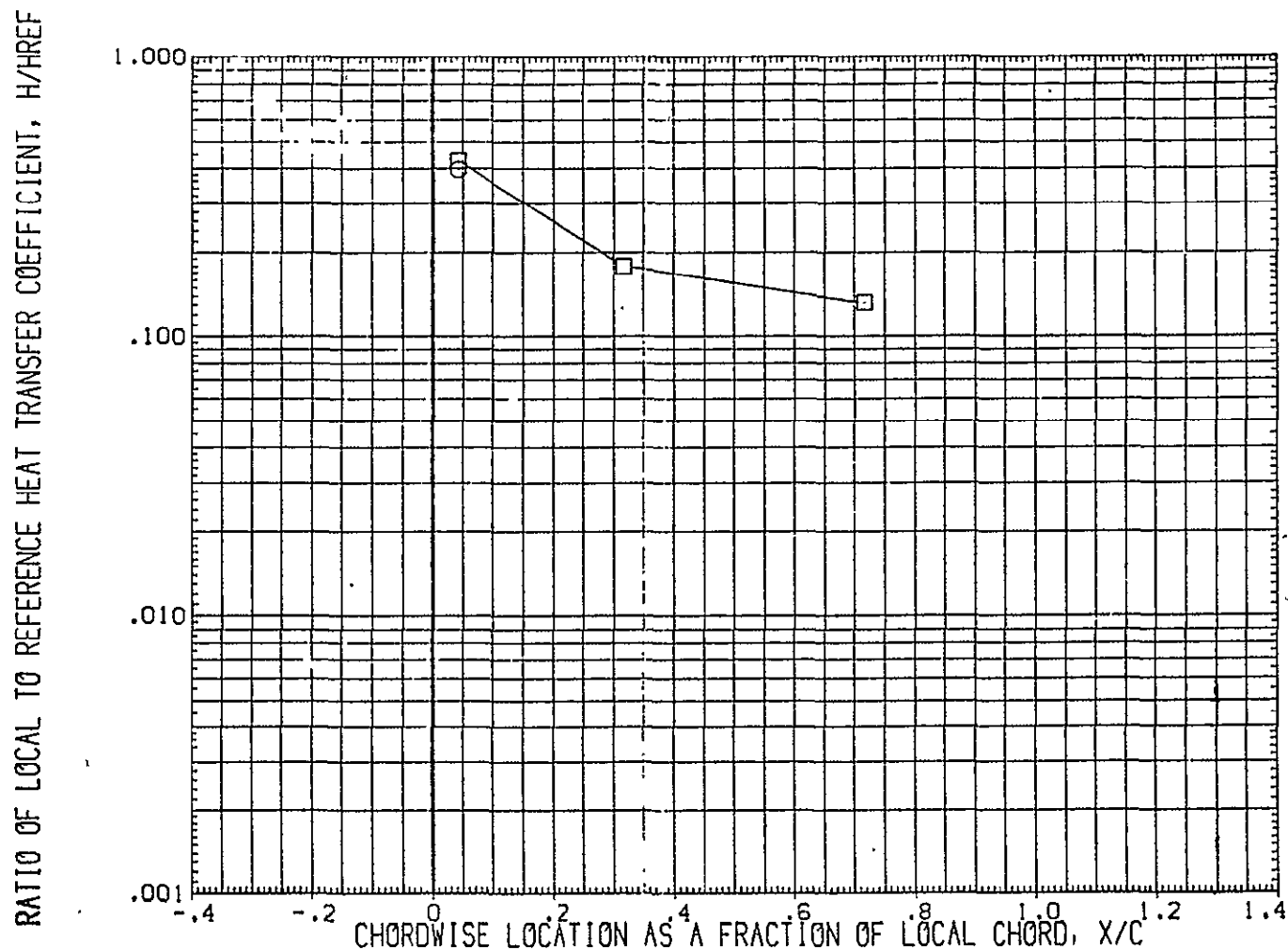


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= .850 2Y/B = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGW12)	CH12/IH21 (CAL HST 173-100) 37° 0	WING L.S.	.043	35.000	.000
(1UGW17)	CH12/IH21 (CAL HST 173-100) 37° 0	WING L.S.	.254	35.000	.000

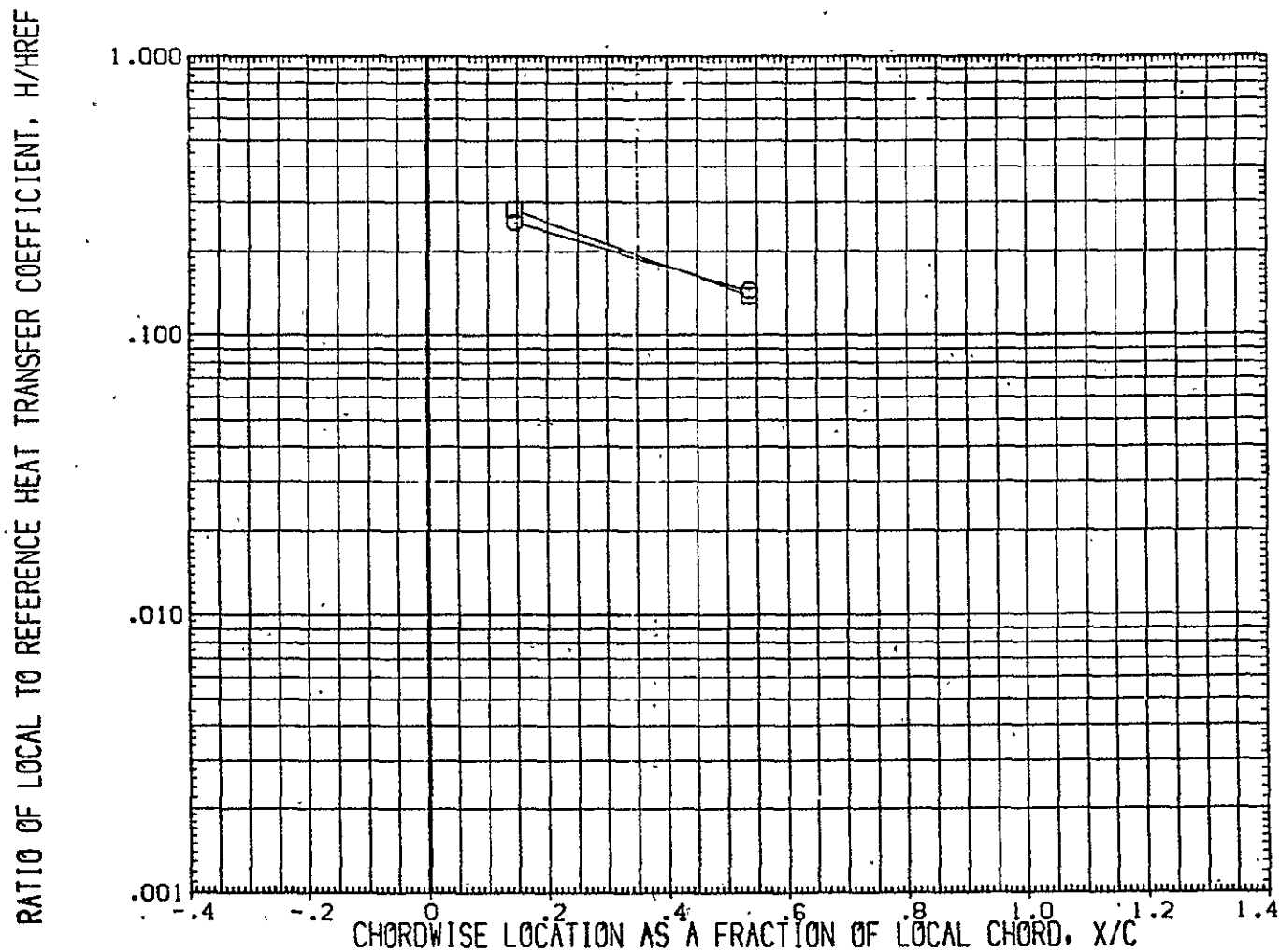


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= .850 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGW12)	OH12/IH21 (CAL HST 173-100) 37 0	WING L.S.	.043	35.000	.000
(IUGW17)	OH12/IH21 (CAL HST 173-100) 37 0	WING L.S.	.254	35.000	.000

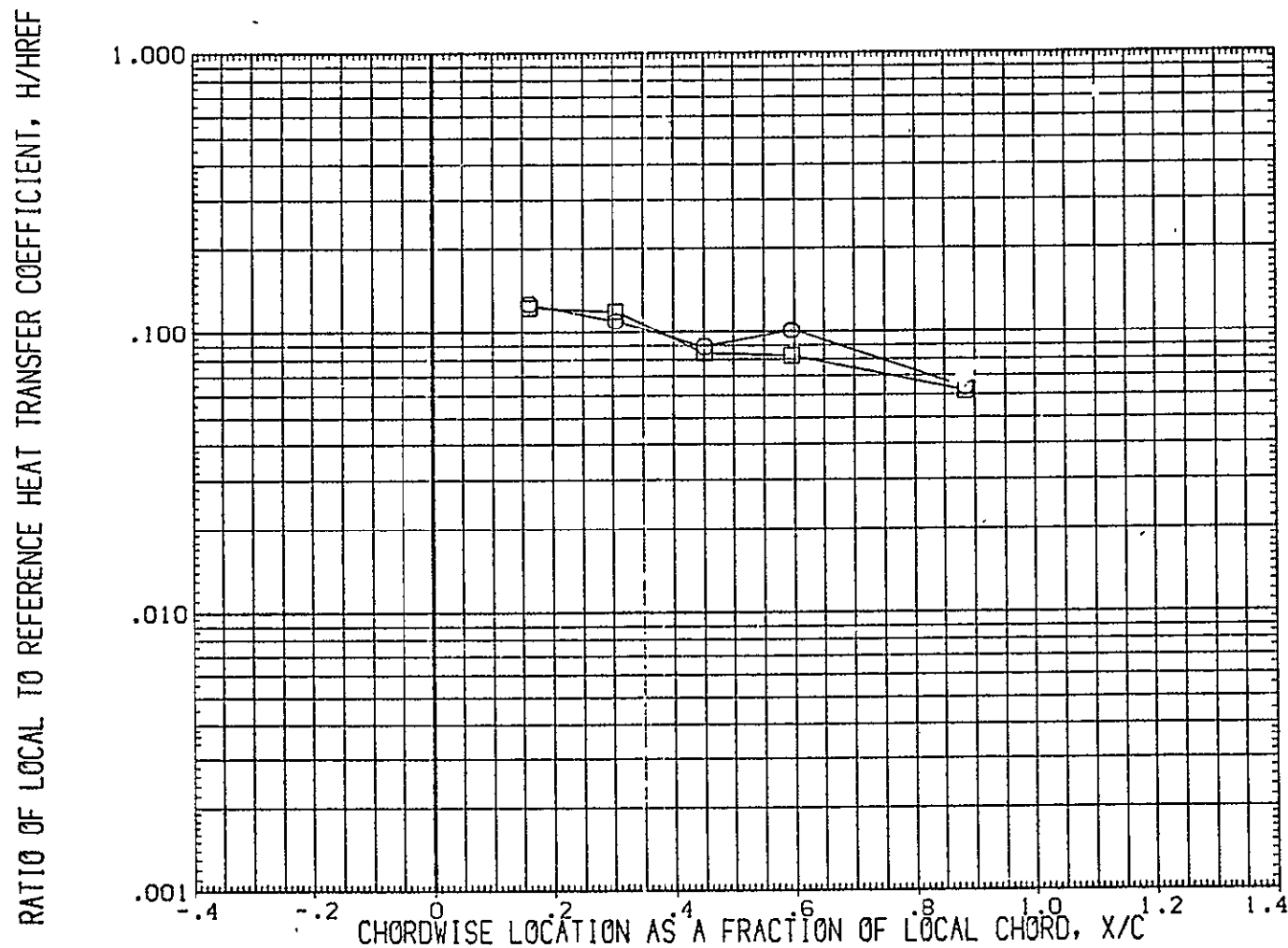


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= .900 2Y/B = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGW12)	GW12/1+21 (CAL SET 173-103) 37 0	WING L S.	.043	35.000	.000
(FUGW17)	GW12/1+21 (CAL SET 173-100) 37 0	WING L S.	.254	35.000	.000

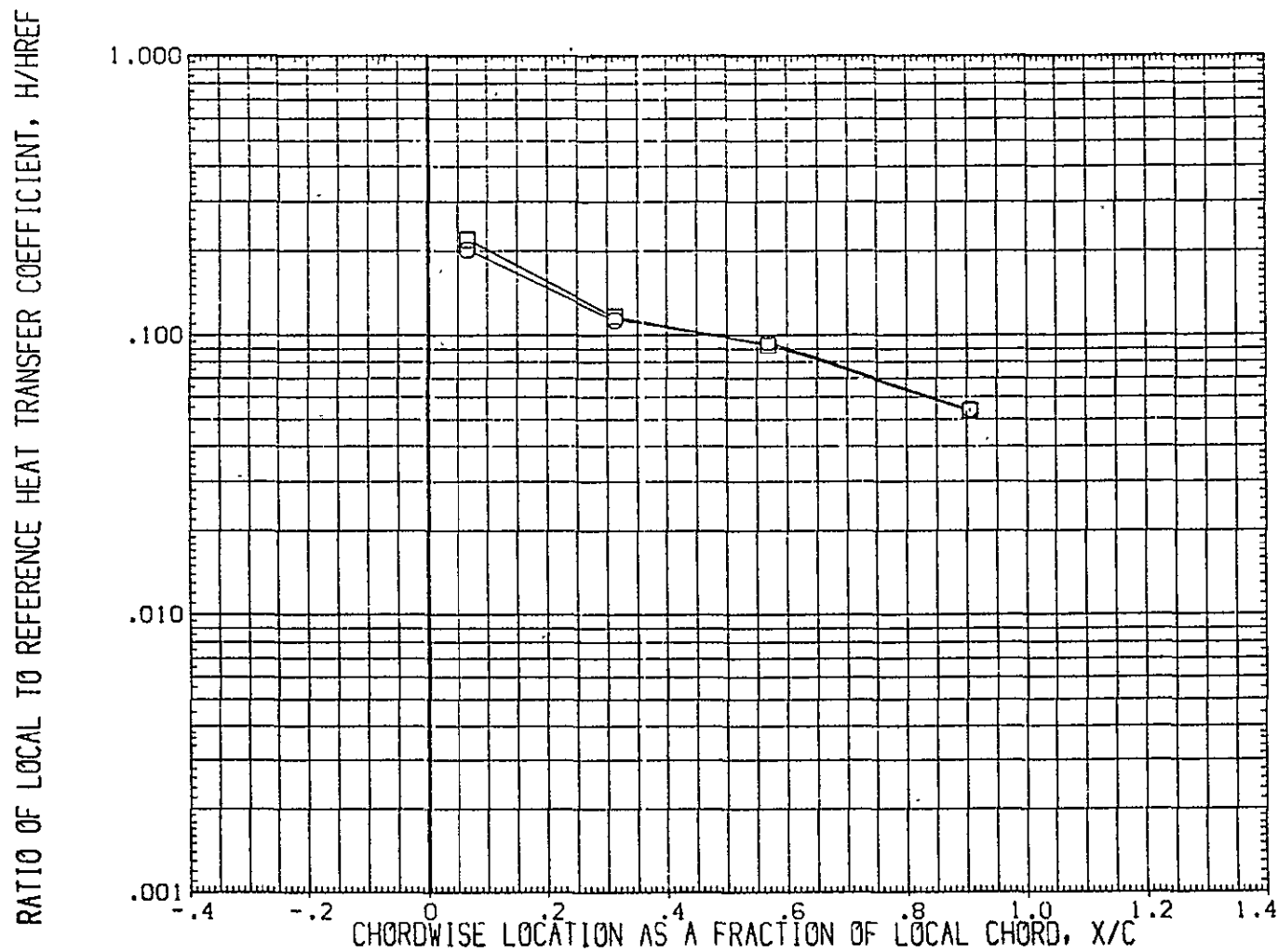


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= .900 2Y/B = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	WING L.S.	RN/L	ALPHA	BETA
(FUGW12)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.043	35.000	.000
(1UGW17)	OH12/1H21 (CAL HST 173-100)	37 0	WING L.S.	.254	35.000	.000

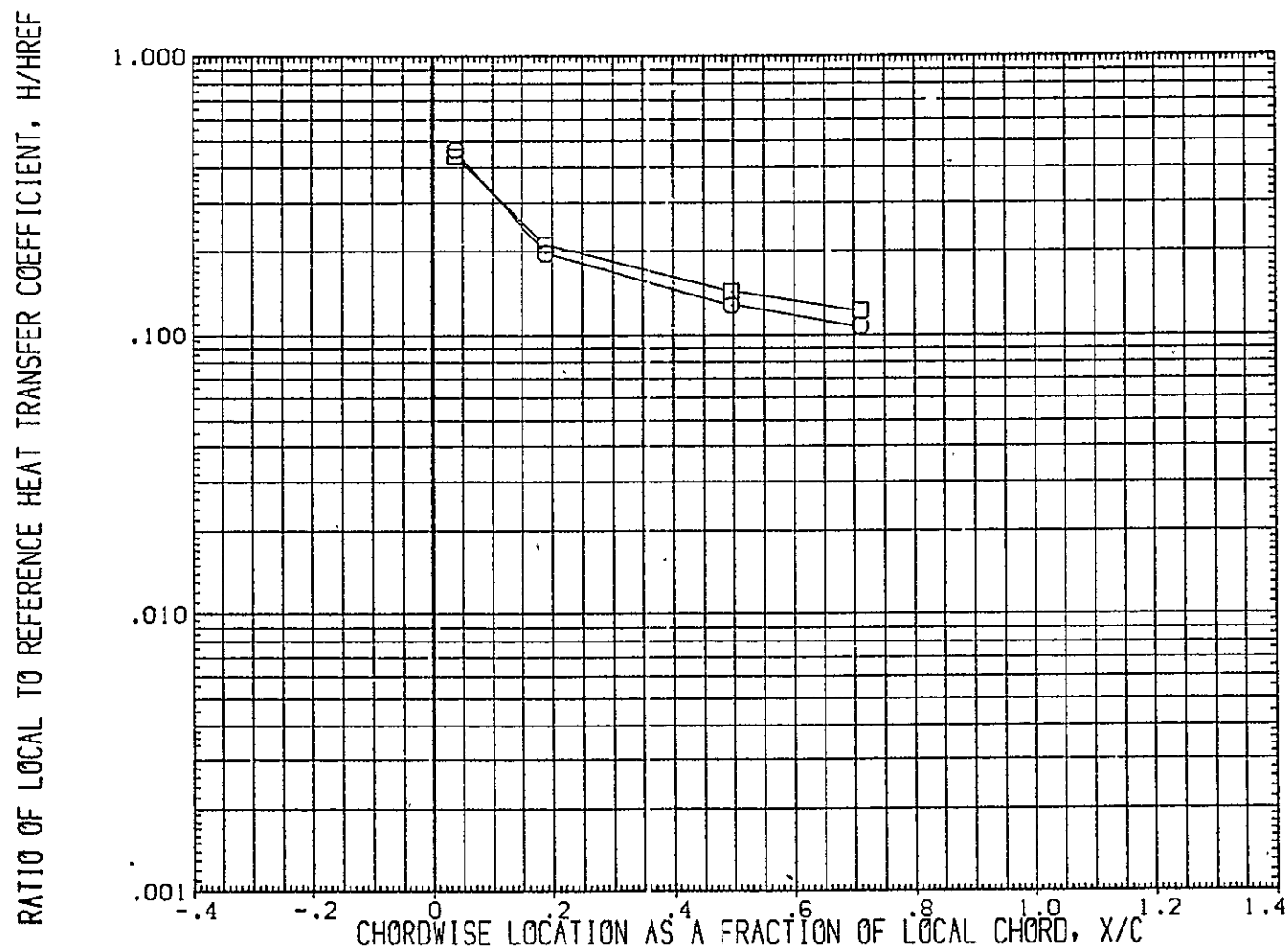


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35
MACH = 15.880 HAW/HT= .900 $2Y/B$ = .500 PAGE 999

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGW12)	OW12/1421 (CAL WST 173-100) 37 0 WING L.S.	.043	35.000	.030
(1UGW17)	OW12/1421 (CAL WST 173-100) 37 0 WING L.S.	.254	35.000	.000

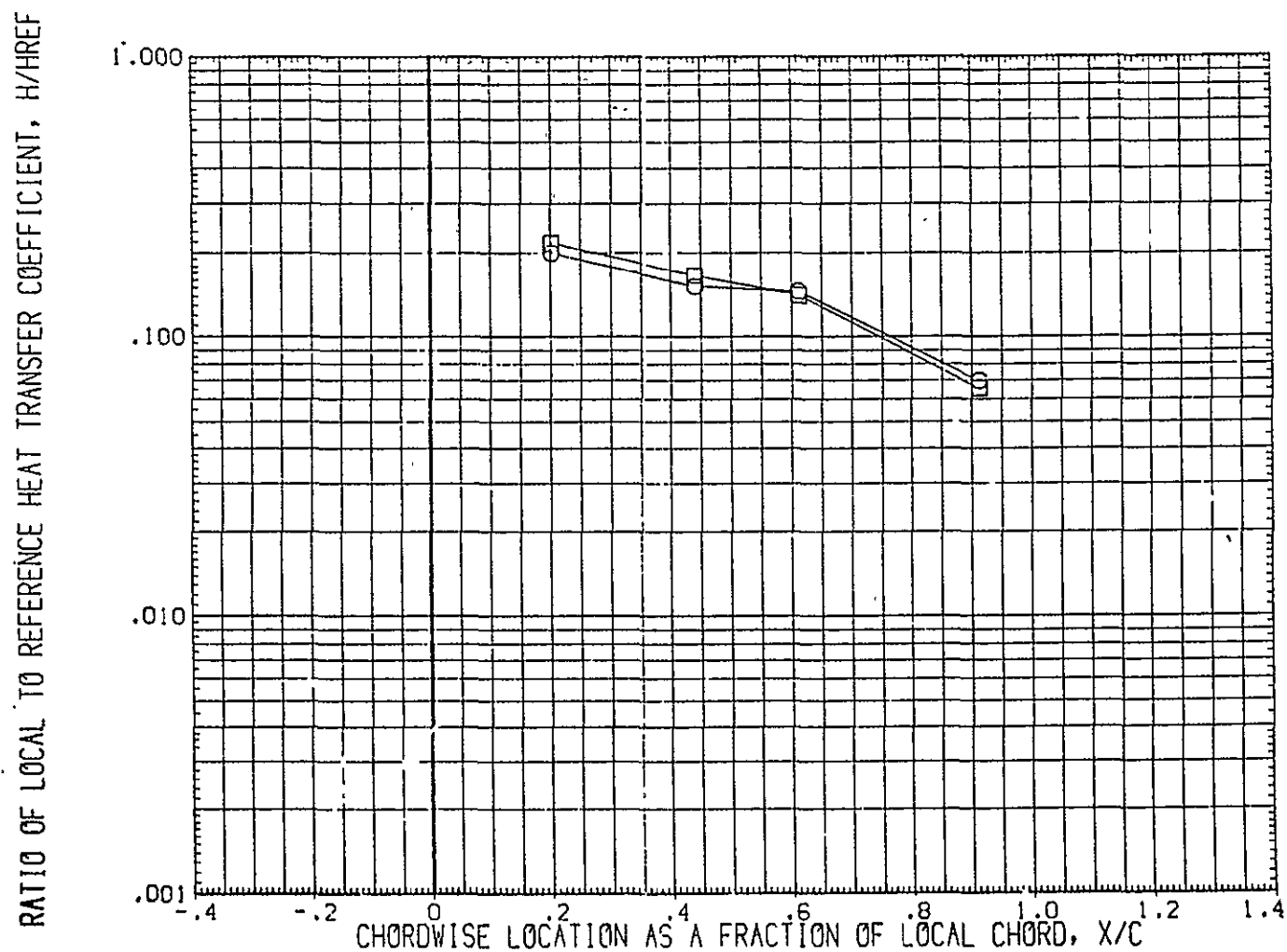


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT = .900 2Y/B = .600

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGW12)	CH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	.043	35.000	.000
(TUGW17)	CH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	.254	35.000	.000

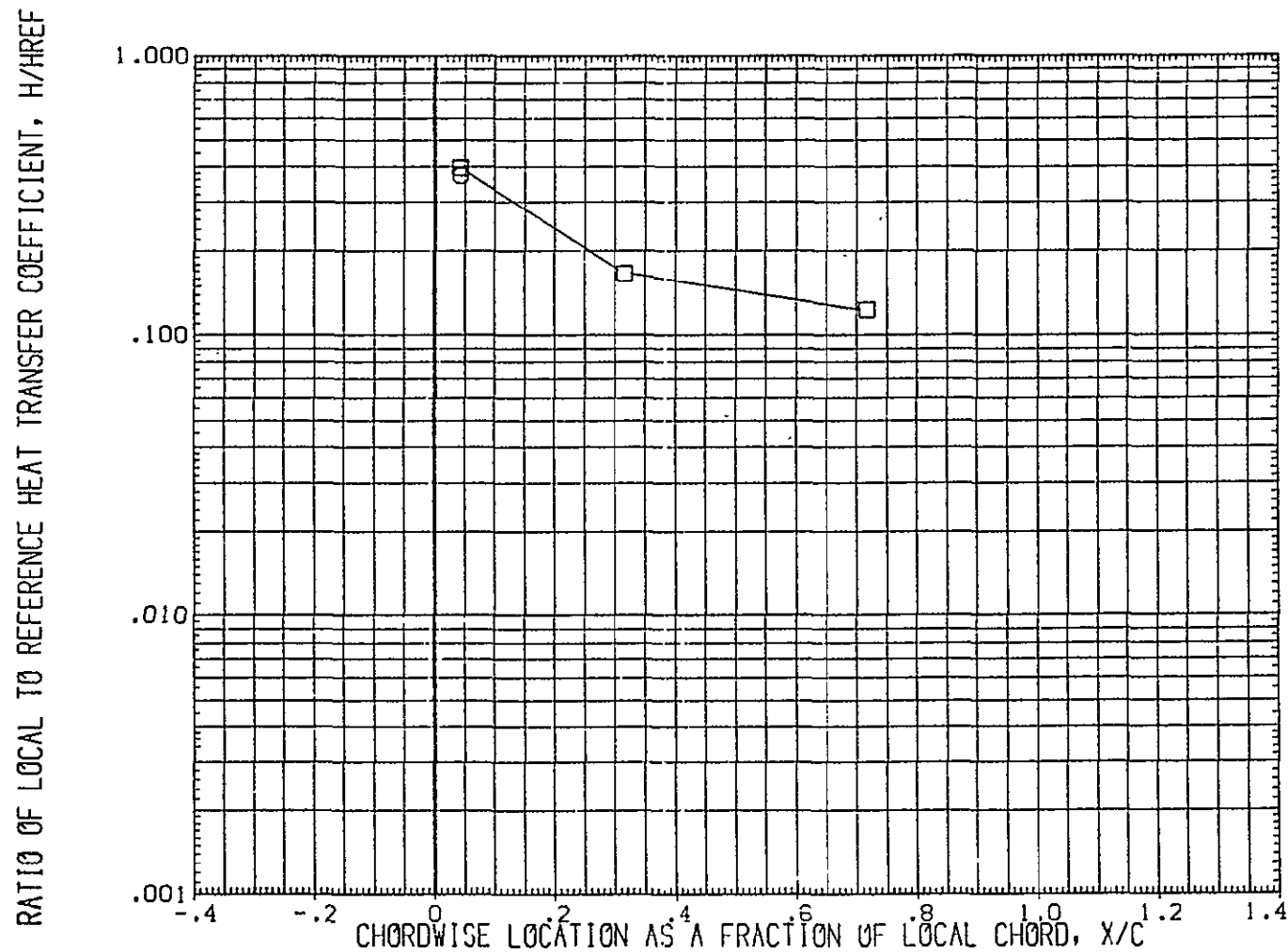


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= .900 2Y/B = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA	
(FUGW12)	CH12/1421 (CAL TS-173-100) 37 0	WING L.S.	.013	35.000	.000
(TUGW17)	CH12/1421 (CAL TS-173-100) 37 0	WING L.S.	.254	35.000	.000

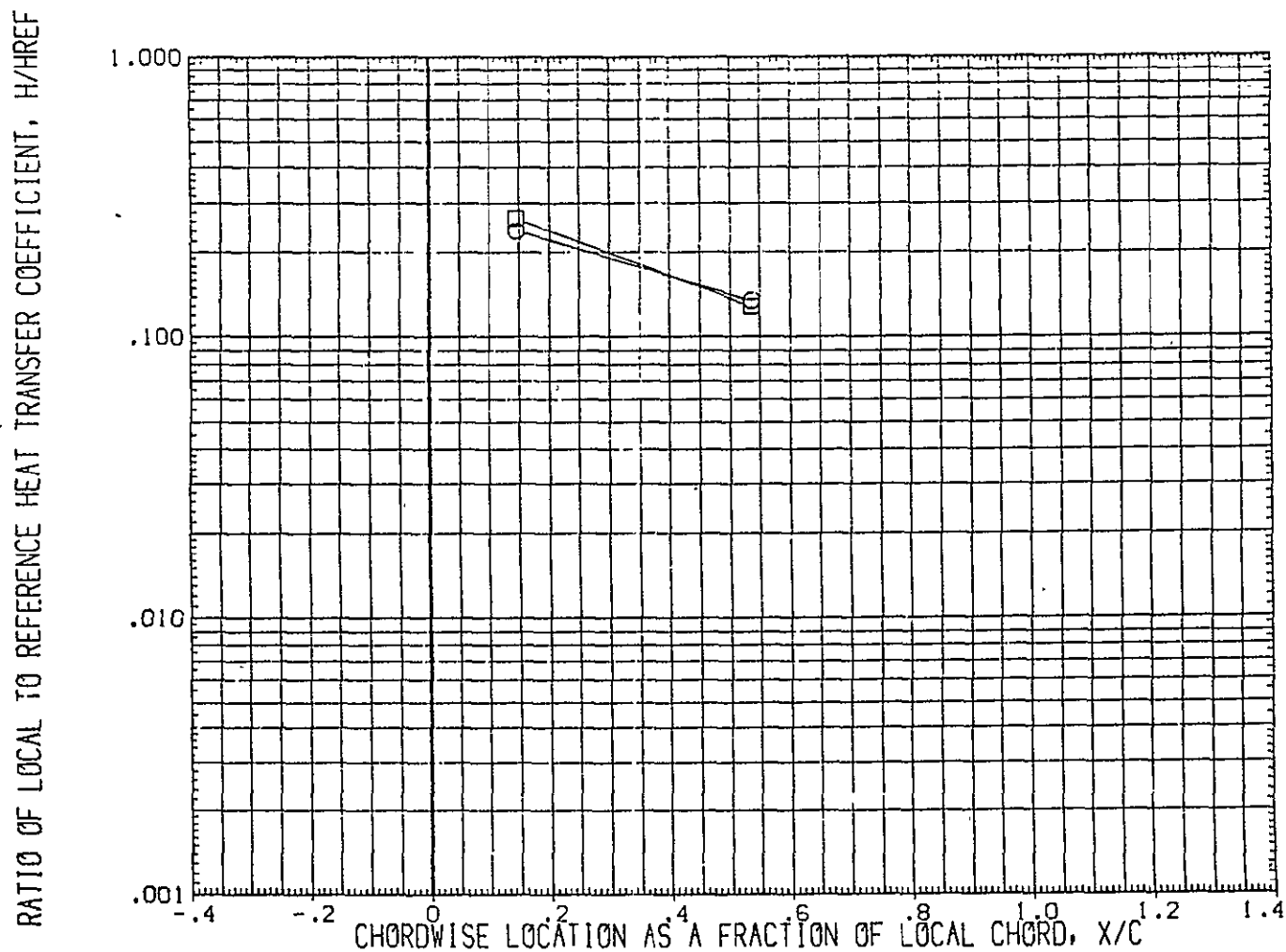


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= .900 2Y/B = .950

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGW12)	OH12/1H21 (CAL. HST 173-100) 37 0 WING L.S.	.043	35.000	.000
(1UGW17)	OH12/1H21 (CAL. HST 173-100) 37 0 WING L.S.	.254	35.000	.000

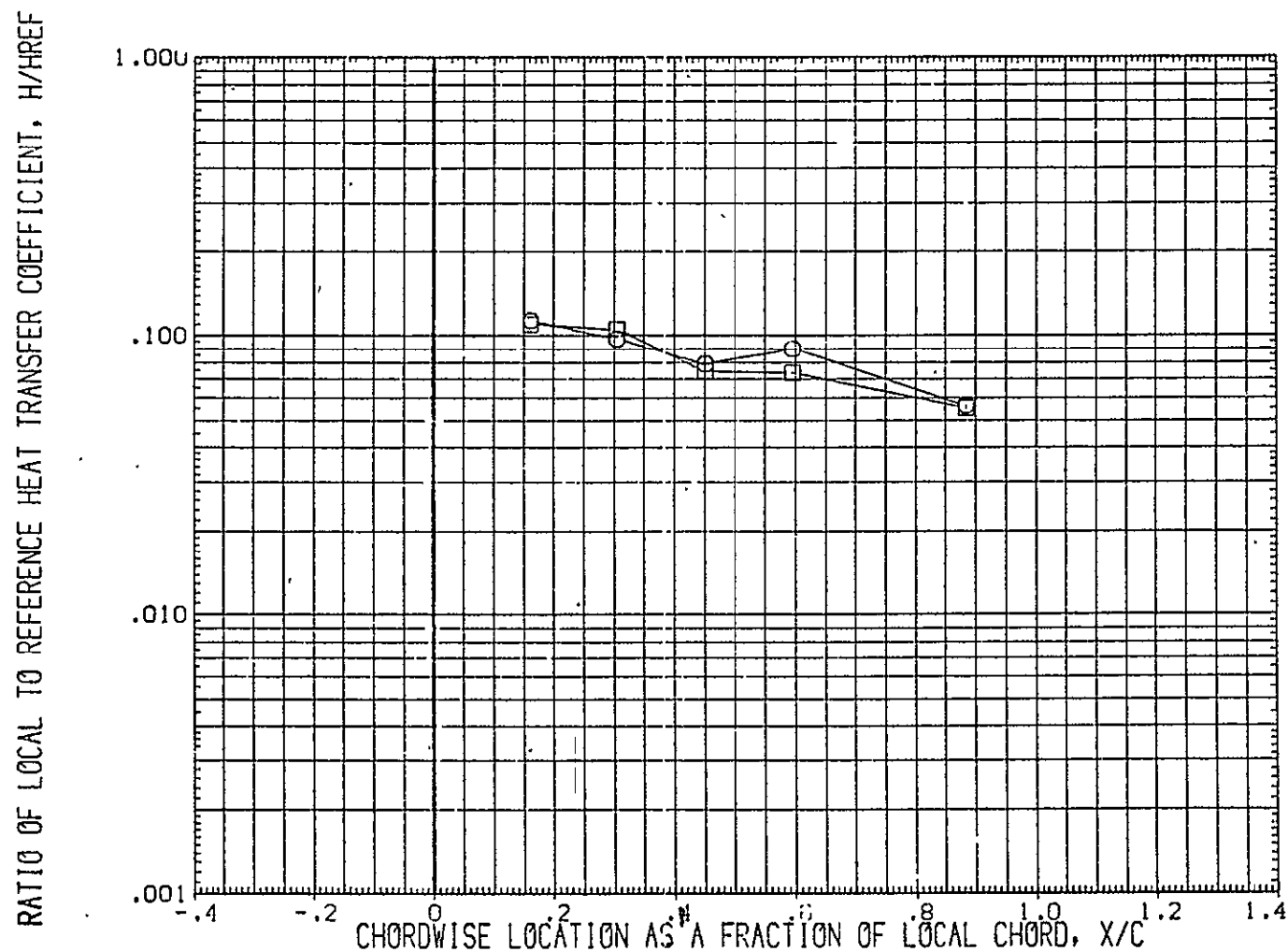


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= 1.000 2Y/B = .250

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	REYNOLDS NO.	ALPHA	BETA	
(FUGV12)	CH12/1421 (CAL HST 173-103) 37 0	WING L.S.	.043	35.000	.000
(FUGV17)	CH12/1421 (CAL HST 173-103) 37 0	WING L.S.	.254	35.000	.000

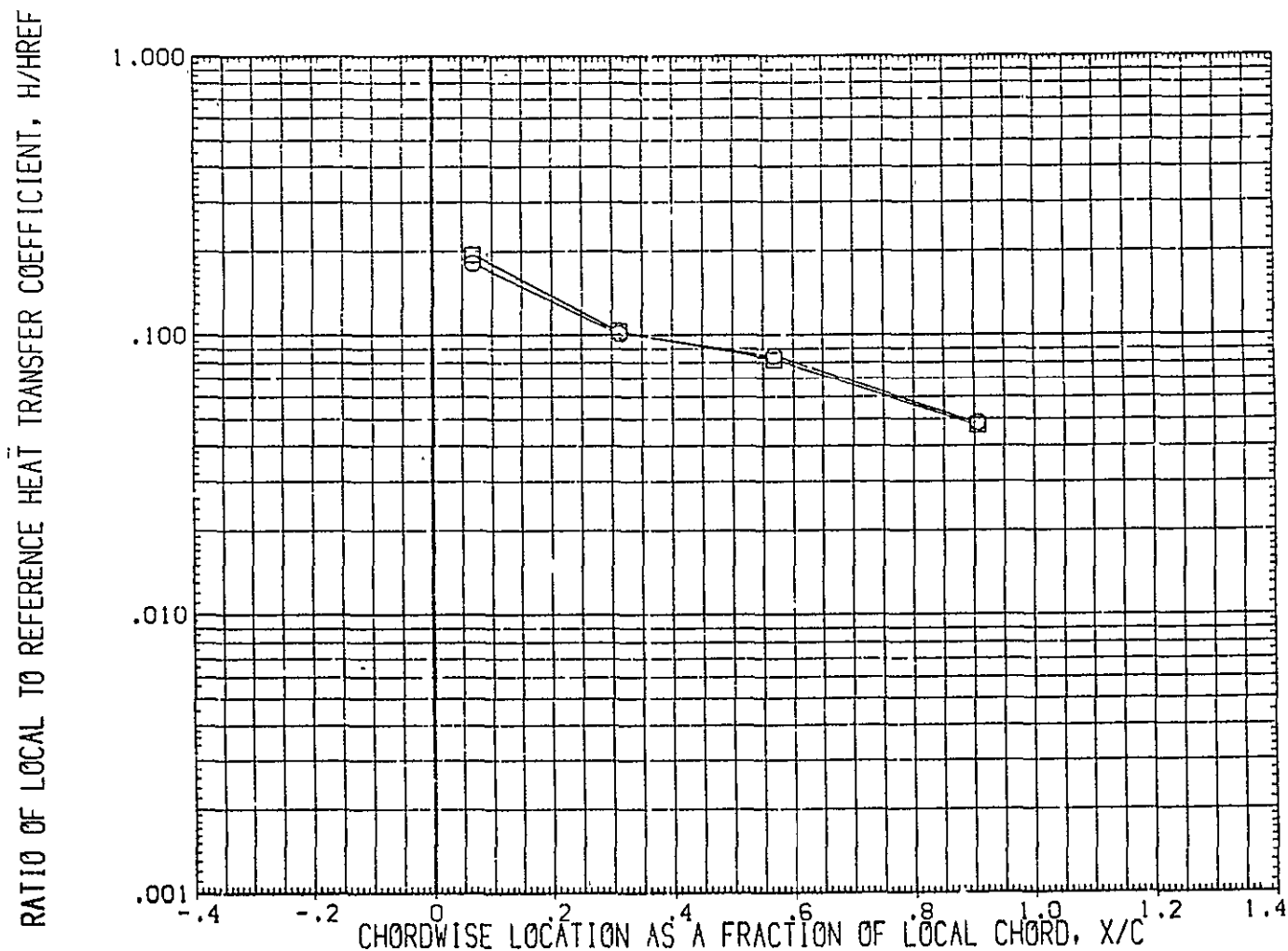


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= 1.000 2Y/B = .400

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(FUGW12)	CH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	.043	35.000	.000
(UGW17)	CH12/IH21 (CAL HST 173-100) 37 0 WING L.S.	.254	35.000	.000

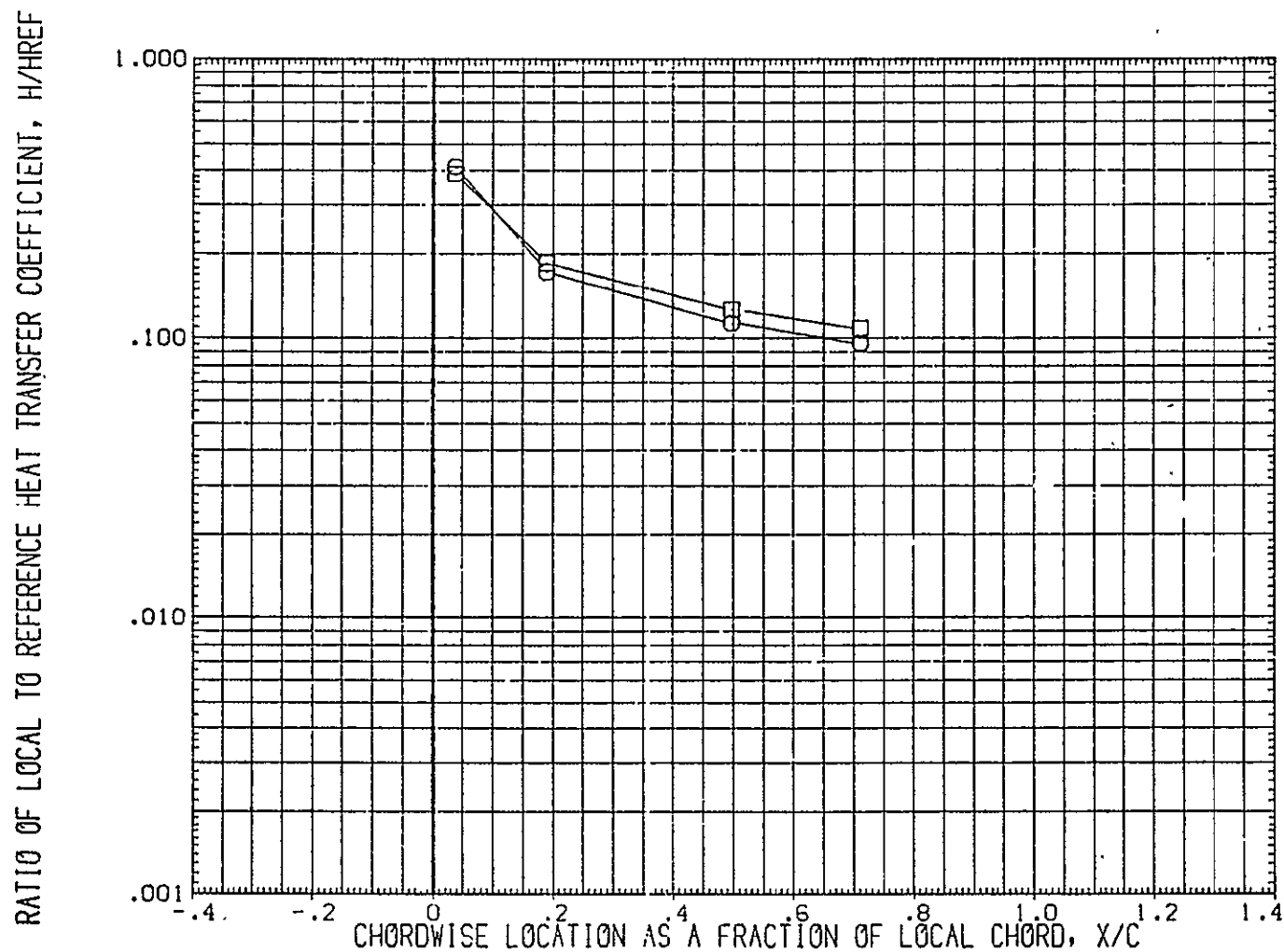


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35
MACH = 15.880 HAW/HT= 1.000 2Y/B = .500 PAGE 1005

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA	
(FUGM12)	OW12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.043	35.000	.000
(UGM17)	OW12/1H21 (CAL HST 173-100) 37 0	WING L.S.	.254	35.000	.000

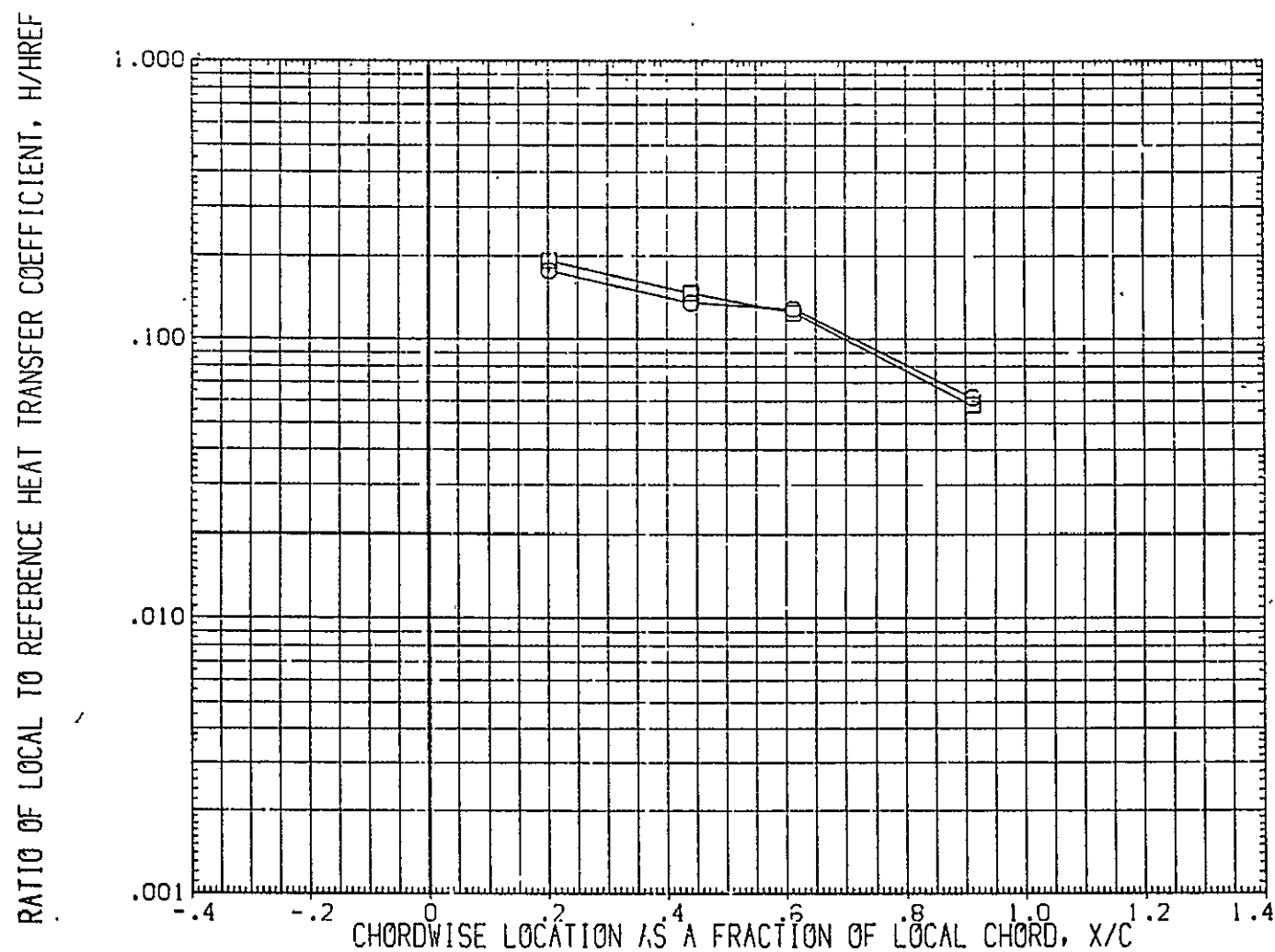


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35
MACH = 15.880 HAW/HT= 1.000 2Y/B = .600 PAGE 1006

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGW12)	OH12/H21 (CAL HST 173-100) 37 0	WING L.S.	.043	35.000	.000
(UGW17)	OH12/H21 (CAL HST 173-100) 37 0	WING L.S.	.254	35.000	.000

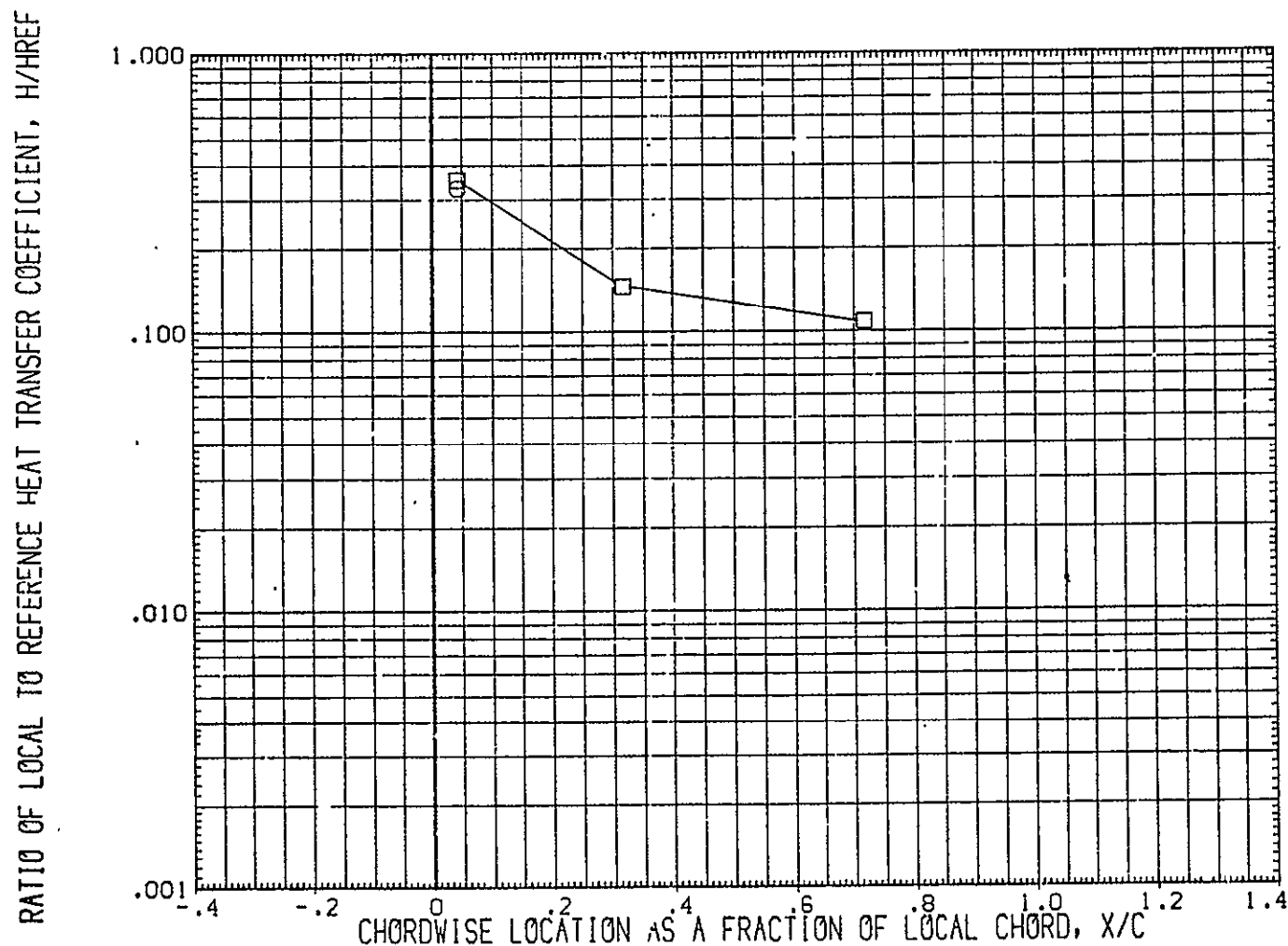


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= 1.000 2Y/B = .750

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WING L.S.	REYNOLDS NO.	ALPHA	BETA
(FUGV12)	CH12/142 (CAL HST 173-100) 37 0	WING L.S.	.043	35.000	.000
(FUGV17)	CH12/142 (CAL HST 173-100) 37 0	WING L.S.	.254	35.000	.000

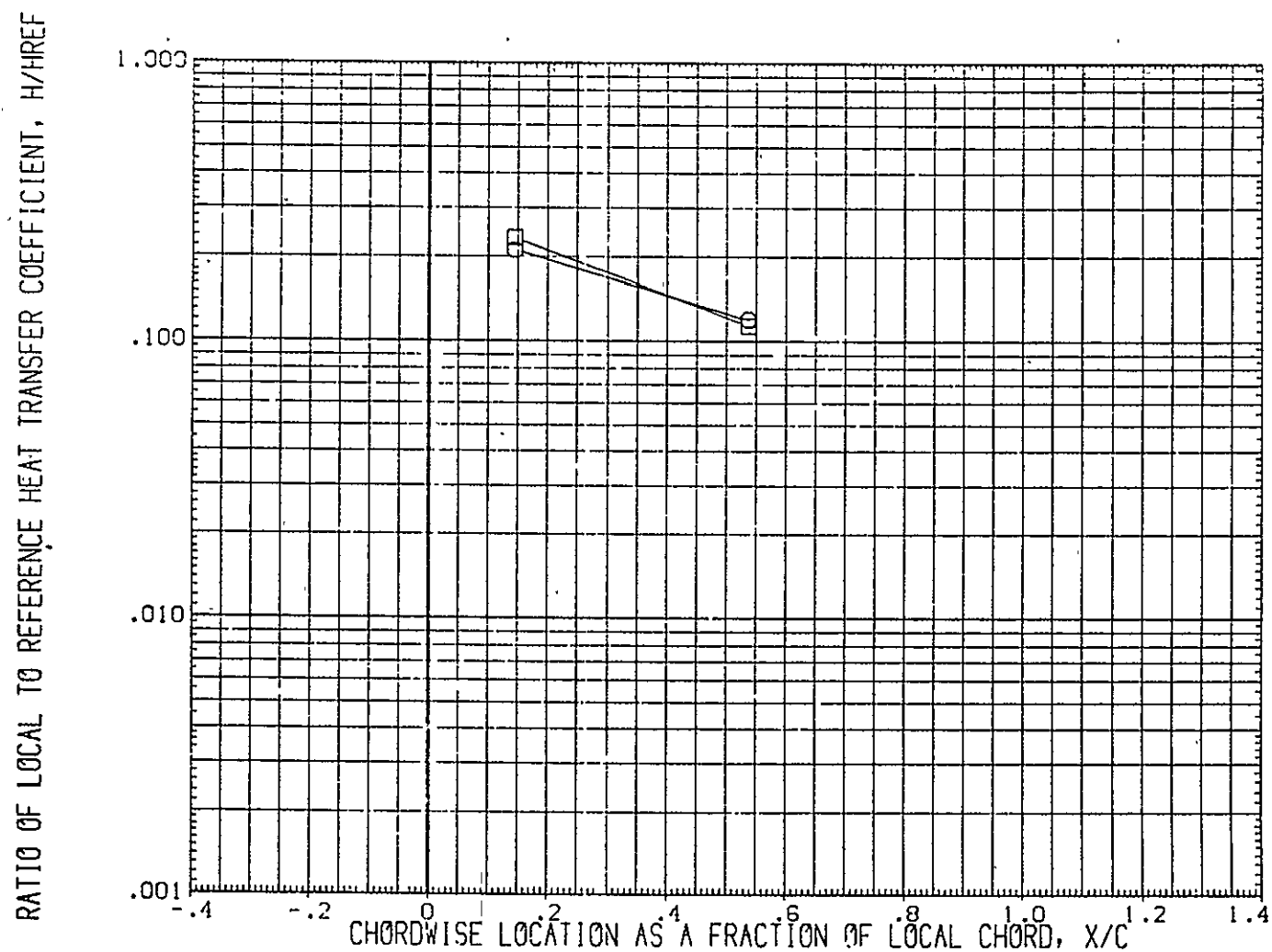


FIG.34 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER WING HEAT TRANSFER ALPHA=35

MACH = 15.880 $h_{AW}/h_T = 1.000$ $2Y/B = .950$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA
(EUGV12)	0-12/1H21 (CAL HST 173-106) 37 0	.266	35.000	.000
(JUGV17)	0H12/1H21 (CAL HST 173-100) 37 0	.983	35.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

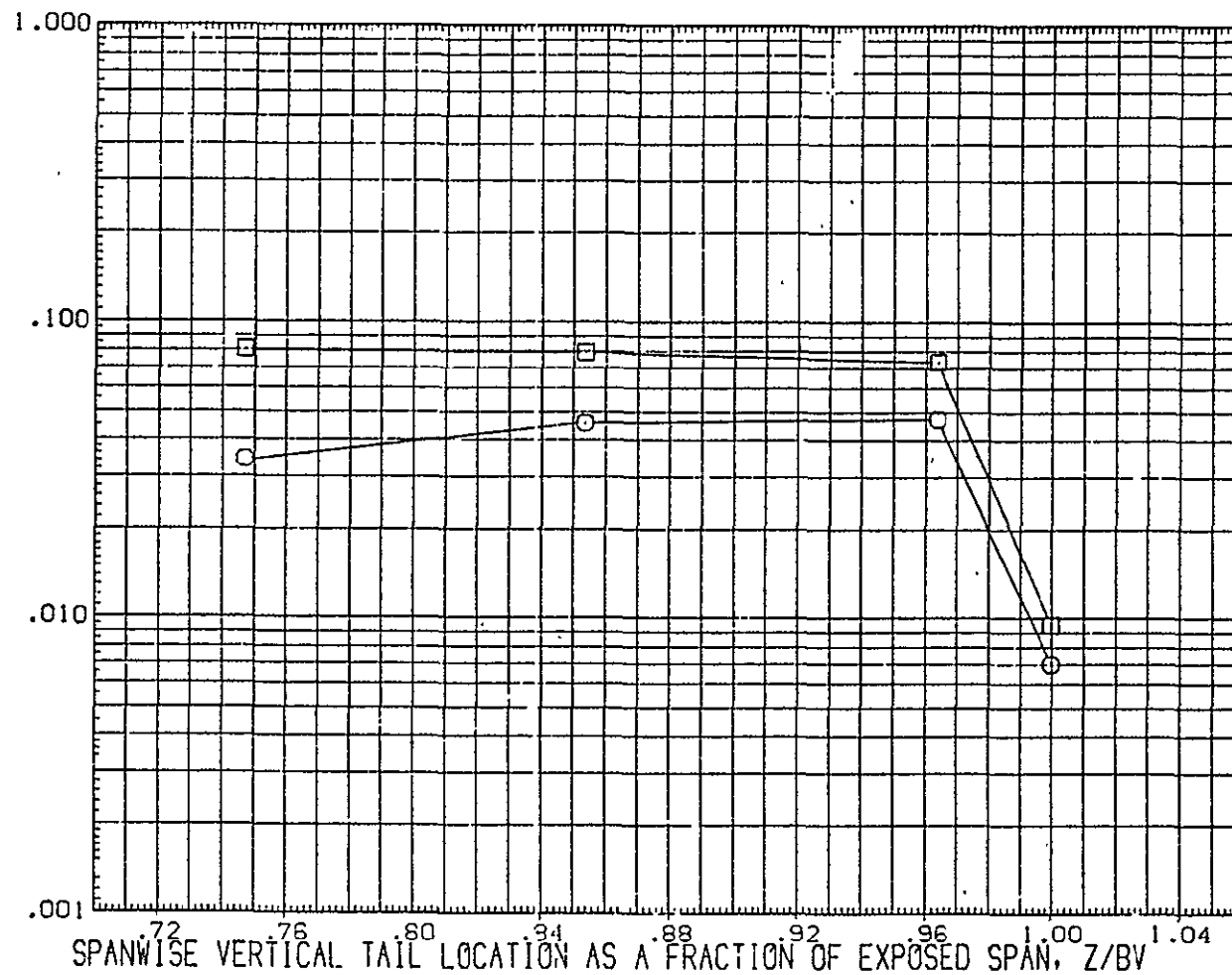


FIG.35 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= .850 GAGENO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA	
(EUGV12)	Q-12/142 (CAL 45° 173-100) 37 0	VERTICAL	.266	35.000	.000
(JUGV17)	Q-12/142 (CAL 45° 173-100) 37 0	VERTICAL	.993	35.000	.000

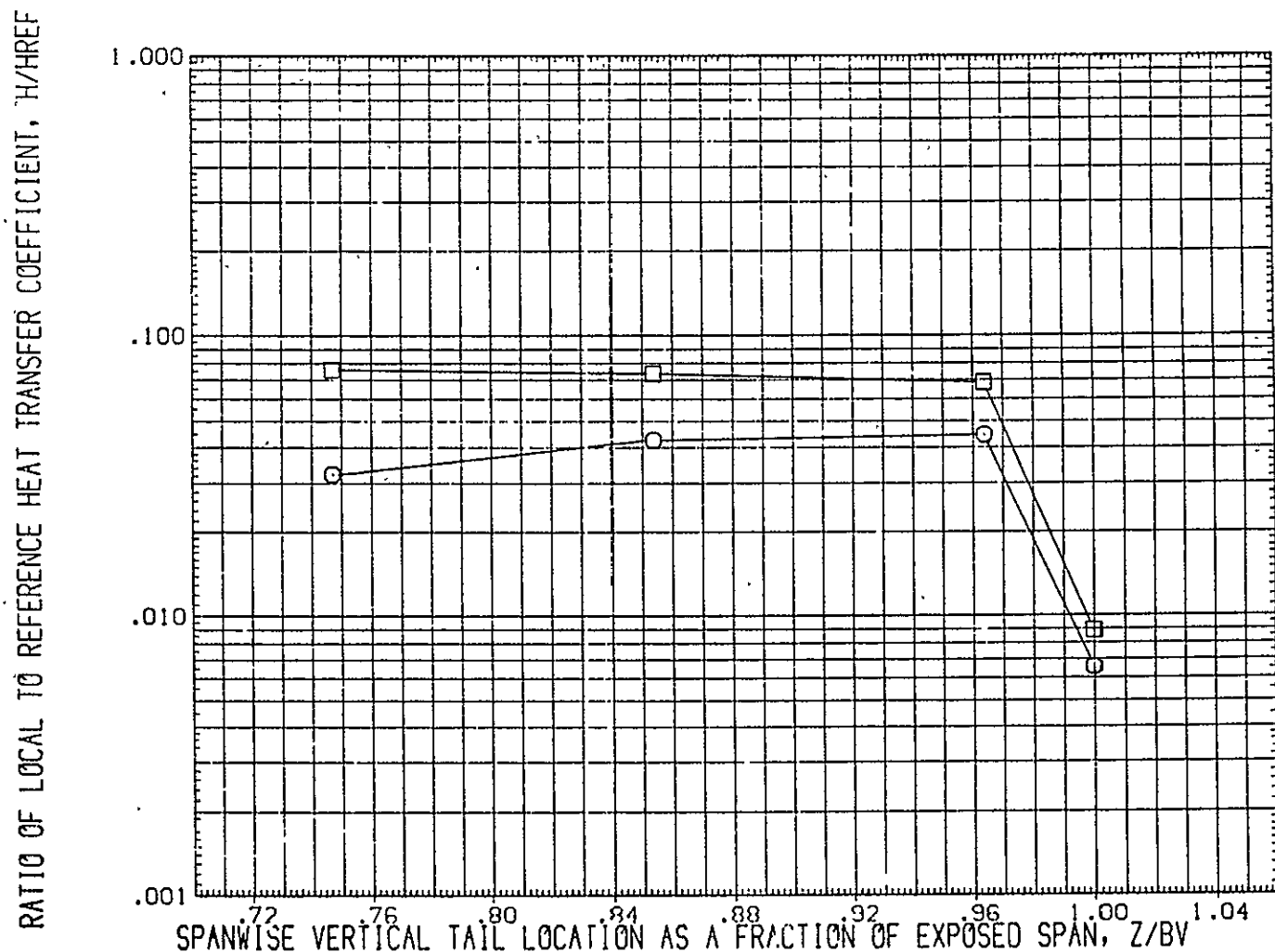


FIG.35 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/H1 = .900 GAGEN = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	37 0	VERTICAL	RM/L	ALPHA	BETA
(EUGV12)	CH12/1421 (CAL HST 173-100)	37 0	VERTICAL	.266	35.000	.000
(JUGV17)	CH12/1421 (CAL HST 173-100)	37 0	VERTICAL	.983	35.000	.000

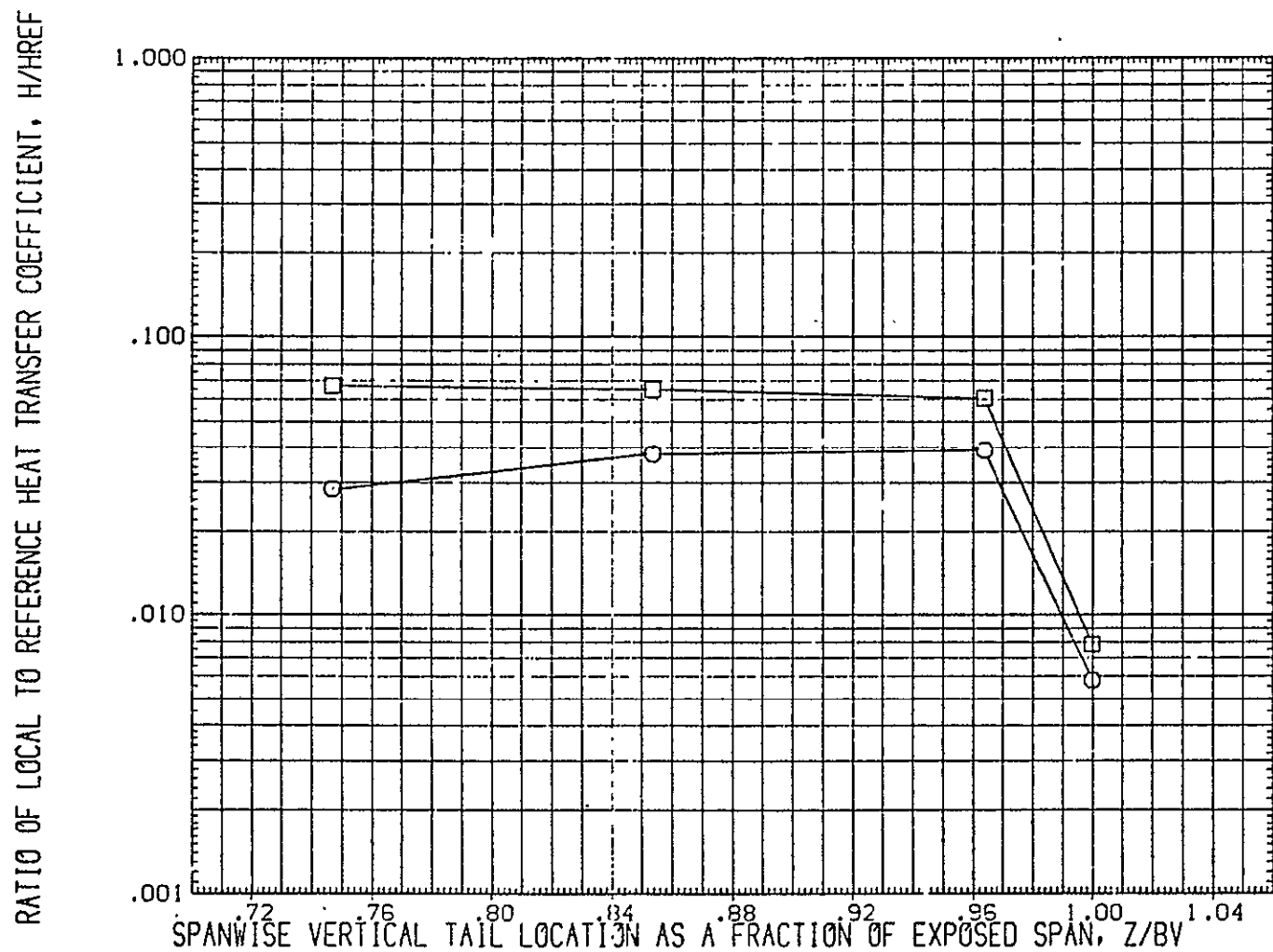


FIG.35 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=35

MACH = 12.100 HAW/HT= 1.000 GAGE NO= 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	PN/L	ALPHA	BETA
(FUGV12)	0412/1H21 (CAL HST 173-100) 37 0	.043	35.000	.000
(FUGV17)	0412/1H21 (CAL HST 173-100) 37 0	.254	35.000	.030

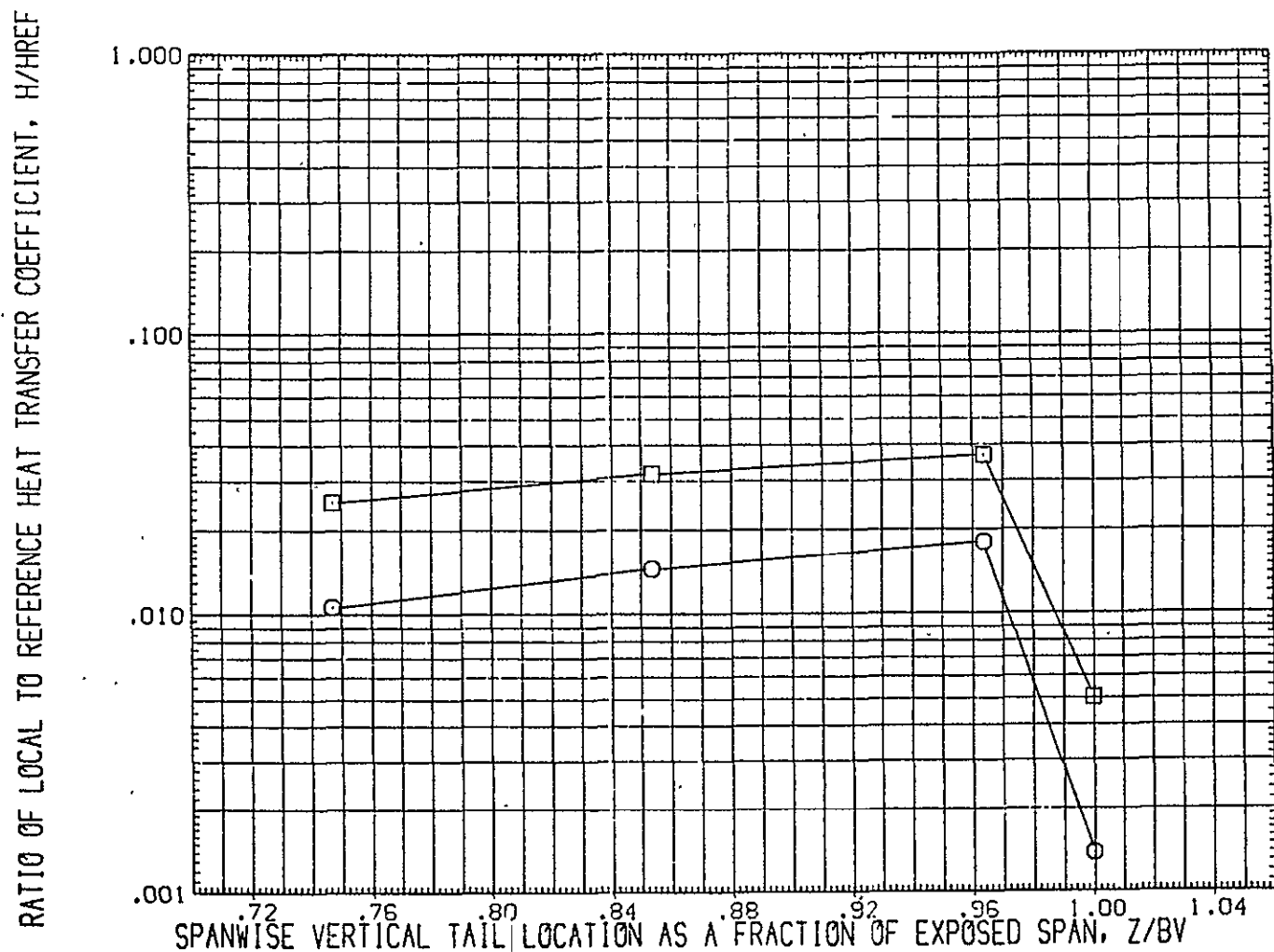


FIG.35 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT = .850 GAGENO = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGV12)	OH12/IH21 (CAL HST 173-100) 37 0	VERTICAL	.043	35.000	.000
(TUGV17)	OH12/IH21 (CAL HST 173-100) 37 0	VERTICAL	.254	35.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT, H/H_{REF}

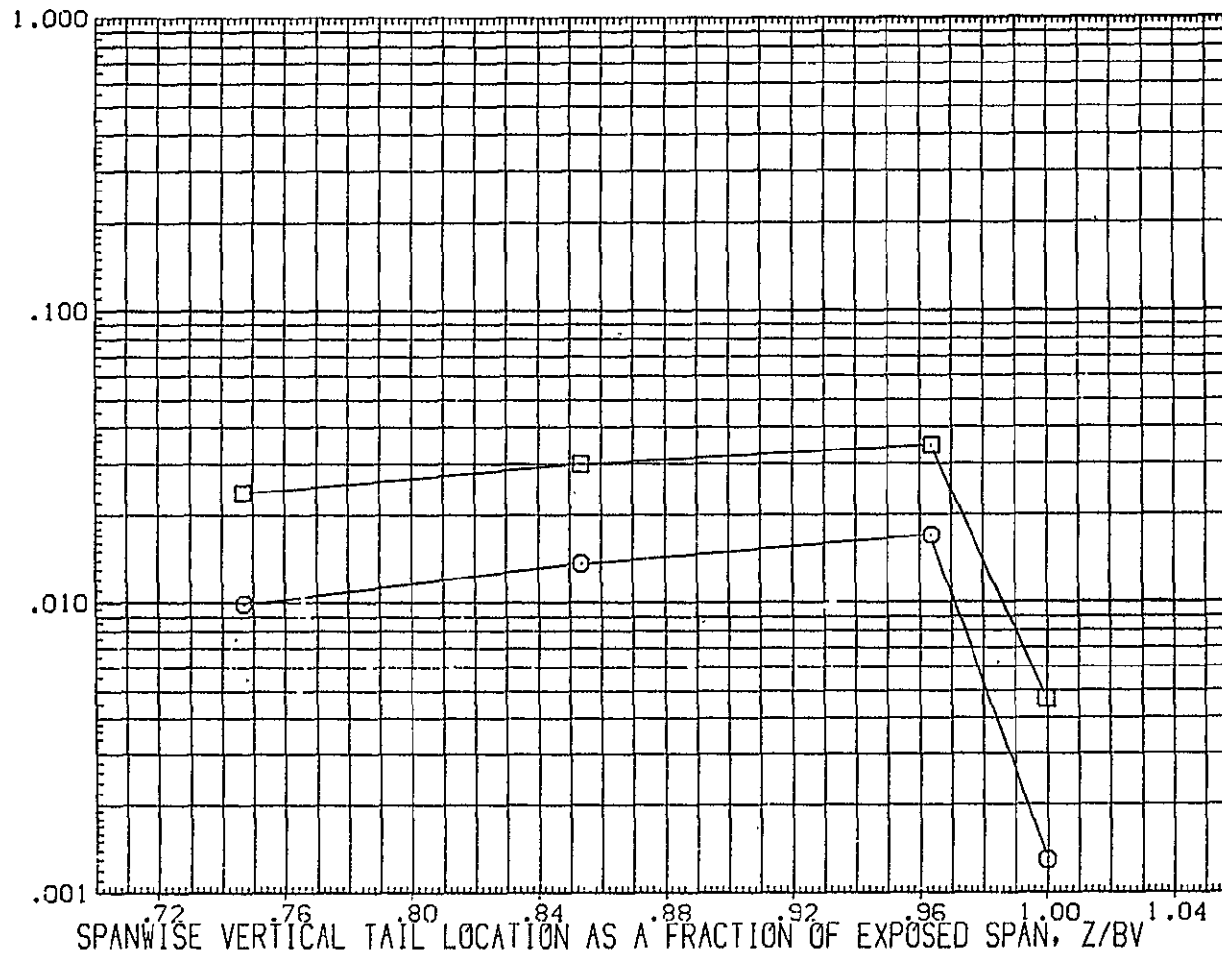


FIG.35 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT = .900 GAGENO = 40.000

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	RN/L	ALPHA	BETA	
(FUGV12)	OH12/1H21 (CAL HST 173-100) 37 0	VERTICAL	.043	35.000	.000
(UGV17)	OH12/1H21 (CAL HST 173-100) 37 0	VERTICAL	.254	35.000	.000

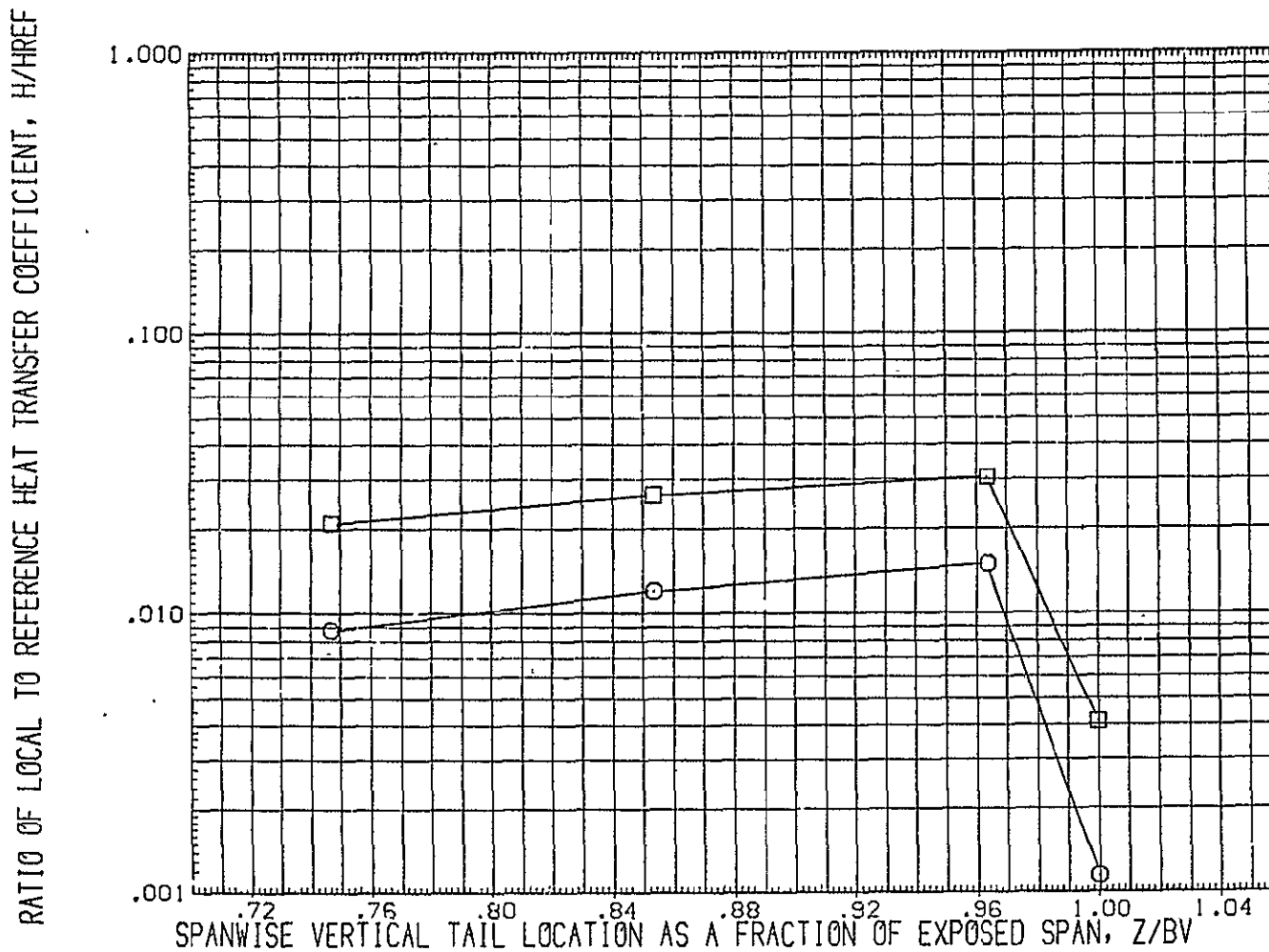


FIG.35 EFFECT OF REYNOLDS NO. ON UNDISTURBED ORBITER TAIL HEAT TRANSFER ALPHA=35

MACH = 15.880 HAW/HT= 1.000 GAGENO= 40.000

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